AMERICAN AGRICULTURIST

FOR THE

Farm, Garden, and Household.

"AGRICULTURE IS THE MOST HEALTHFUL, MOST USEFUL, AND MOST NOBLE EMPLOYMENT OF MAN."—WASHINGTON.

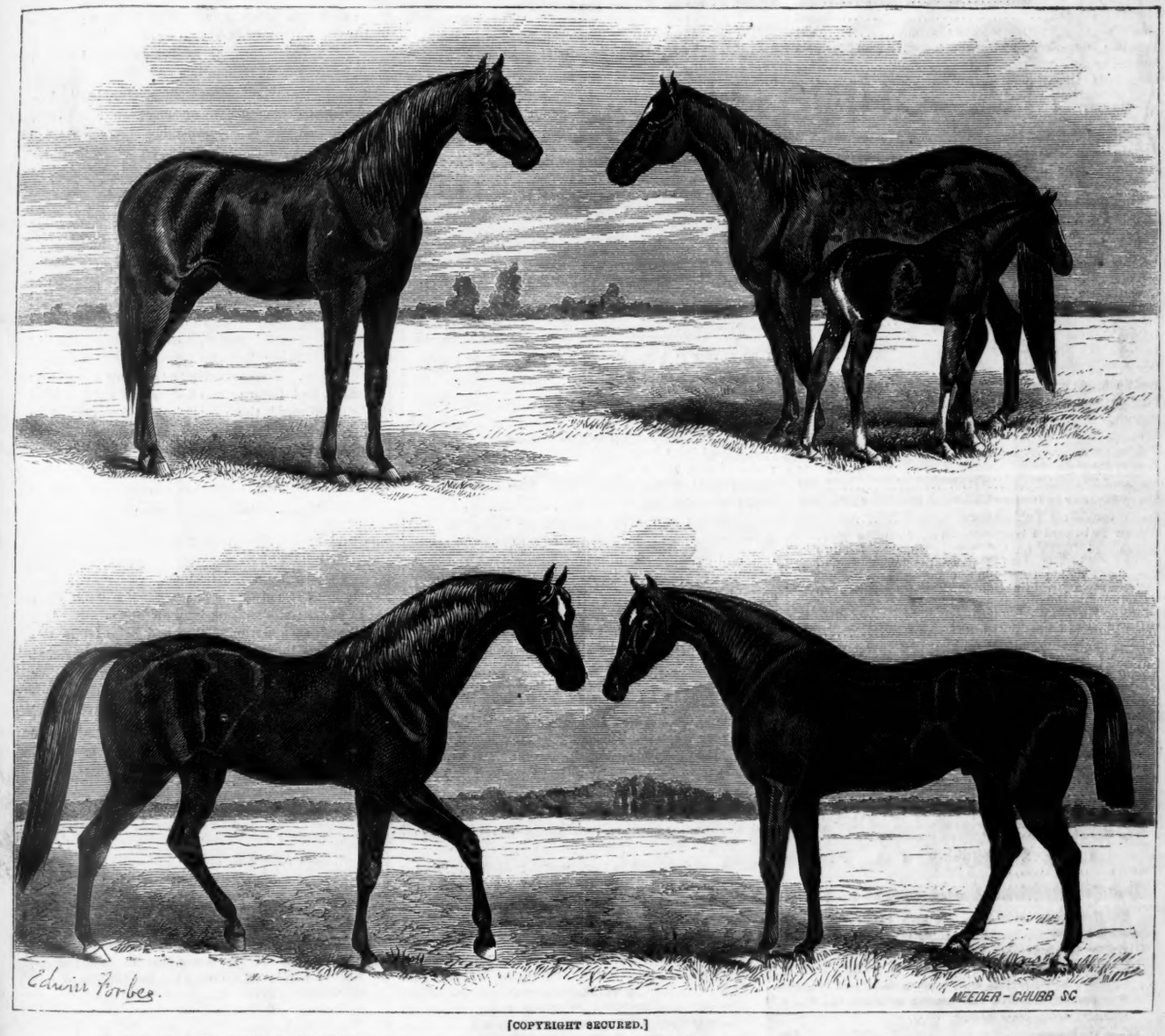
ORANGE JUDD & CO., PUBLISHERS AND PROPRIETORS. Office, 245 BROADWAY.

ESTABLISHED IN 1842.
Published also in German at $1.50 a Year.

$1.50 PER ANNUM, IN ADVANCE.
SINGLE NUMBER, 15 CENTS.
4 Copies for $5; 10 for $12; 20 or more, $1 each.

Entered according to Act of Congress in May, 1870, by ORANGE JUDD & Co., in the Clerk's Office of the District Court of the United States for the Southern District of New York.

VOLUME XXIX.—No. 6. NEW YORK, JUNE, 1870. NEW SERIES—No. 281.



[COPYRIGHT SECURED.]

THOROUGH-BREDS OF CLIFTON STUD.—*Drawn and Engraved for the American Agriculturist.*

The Thorough-bred compares with other horses, as oak compares with pine, or steel with iron. Blood tells for generations; and the best blood among the thorough-breds is of course very valuable. We give above, striking pictures of some of the best of Mr. R. W. Cameron's horses. Clifton Stud Farm, Staten Island, has been for several years famous for thorough-bred stock of several kinds—Shorthorns and Jerseys, Berkshires and Dorkings—besides its stud of mares, stallions, and young horses.—*Leamington*, the horse on the lower left-hand side, is regarded as the handsomest model for a race-horse in this country if not in the world. He is so well known, both here and in Europe, that it is only necessary to state that he is a very powerful, dark brown horse, 16½ hands high. He was got by Foig-a-Ballagh, out of a Pantaloon mare. Foig-a-Ballagh was full brother of Irish Birdcatcher, and all the family are famed race-horses. Leamington was imported by Mr. Cameron in 1866, and was sold last autumn to Mr. A. Welch, of Chestnut Hill, Philadelphia, for $15,000. He stands at Patterson, N. J., this season, at $200.

This horse (in England) twice won the Chester Cup, 2½ miles, carrying the heaviest weights, and beating in one race 37, and in the second, 41 horses. He also won the Goodwood Stakes, and was considered the best horse of his day. His get in this country are already famous: Lynchburg and Enquirer, in Kentucky; Miss Alice and Anna Mase, here, established his superiority. Lynchburg was sold for $5,000, and this price was refused for Enquirer. $7,000 was offered and refused for Miss Alice after her famous match last year, but both she and Anna Mase were unfortunately killed by accidents.

The stallions Glennevis and Warminster, and the mare Rebecca, are described on page 206.

Contents for June, 1870.

Bee Notes—By M. Quinby....208
Birds—Great Northern Shrike, or Butcher-bird...*Ill.*..220
Boys and Girls' Columns.—A Rustic Bird-cage—The Zebu or Brahmin Bull—Chinese Kite Flying, by "Carleton"—Winning his Plumes—Puzzles—Answers....5 *Illustrations*..227-228
Butter—Prize Essay on Making and Packing.....218-219
Celery Culture—By Peter Henderson.....221
Classification of Breeds of Fowls.....218
Dressing and Cutting up Mutton.....2 *Illustrations*..216
Early Made Hay.....217
Farm Work in June.....202
Fence Posts for Heavy Land.....3 *Illustrations*..216
Fencing Across Streams.....*Illustrated*..216
Fire Hot beds.....223
Flower Garden and Lawn in June.....204
Fruit Garden in June.....203
Garden Refuse.....222
Green-house and Window Plants in June.....204
Hints on House-keeping Conveniences.....8 *Illus*..208
Horse Papers for Farmers—No. 5.....210
Household Department. — An Aquarium—The New Baby and its Mother—How to Cook Green Peas—Strawberry Short-cake—Lyonnaise Potatoes—Canned Rhubarb.....6 *Illustrations*..225-226
Inarching the Grape-vine.....2 *Illustrations*..223
Jasmine-like Bouvardia.....*Illustrated*..221
Kitchen Garden in June.....203
Large-leaved Saxifrages.....*Illustrated*..221
Marketing Butter.....5 *Illustrations*..217
Market Reports.....204
Maze at Central Park.....*Illustrated*..224
Notes from the Pines—Climbing Shrubs—Perpetual Spinach Beet—External Appearances—Wooden Hay Rake—Winter Decoration of Gardens.....222
Ogden Farm Papers.—No. 6—Corn for Soiling—More Land — High Farming—Deep Plowing — Thomas' Harrow—Manure.....211-212
Opium Culture.....3 *Illustrations*..222
Orchard and Nursery in June.....203
Our Native Frogs.....*Illustrated*..213
Prairie Apple or Pomme Blanche.....*Illustrated*..213
Preparation of Tobacco Land.....218
President Wilder and Chas. Downing Strawberries...223
Pruning Evergreens.....224
Put in Roots.....218
Scarlet Crassula.....*Illustrated*..224
Seeds of Perennials.....224
Sheep Dipping to Destroy Ticks and Scab....4 *Illus*..212
To Prevent Birds Pulling Corn.....220
Wagon Tail-board Fastenings.....2 *Illustrations*..217
Walks and Talks on the Farm—No. 78 — Fatality Among Pigs—Care of Horses—Inefficient Implements—Feeding Horses in Summer—Cotswolds and Merinos—A Virginia Run-down Farm—Advice to Beginners— Raising Beans— Phosphate— Crossing Merino Ewes with Long-wooled Rams.....214-215
What Flowers will Grow in the Shade?.....223

INDEX TO "BASKET" OR SMALLER ARTICLES.

Advice.....206
Am. Entomologist.....209
Apples for Northern Ia. .207
Bark-louse.....207
Bees and Fruit.....209
Bedding for Cattle.....207
Black Ants.....207
Botanical Microscope...207
Bugs on Vines.....207
Butter Packing.....209
Canaille.....207
Chinese Primroses.....207
Chocolate Corn.....209
Cider for Vinegar.....207
Cooking Fodder.....209
Cranberry Culture.....209
Cucumbers.....207
Currant Caterpillars.....207
Cut Feed.....207
Draining Ponds.....204
"Eating a Mandarin."..206
Farm Windmills.....210
First Book of Botany....209
Fruit-Preserving Powder207
Grain Crops.....209
Grape Queries.....209
Grinding Scythes....*Ill*..209
Grubs in Lawns.....207
Gum for Postage Stamps207
Harris on the Pig.....206
Herbaceous Pæonies....207
Horticultural School.....206
How many Beans?.....209
Insects on Cabbages....207
Let Poisons Alone.....206
Lightning-Rods.....204
Maple Sugar.....209
Minn. Hort. Society.....207
Mr. Cameron's Horses ..206
Paradise Apple Seed....207
Patrons of Husbandry...206
Peach Culture.....206
Plant Named.....207
Pruning a Young Orch'd.207
Raising Ducks.....*Ill* 209
Red Spider on Fuchsias.207
Rock-Work.....209
Rose Oil.....207
Salt and Lime Mixture..209
Seeds don't Come Up ...207
Southern Agriculturist..207
Spring Water for Ponds.210
Steaming Corn for Pigs..209
Strawberry and its Cul'e.206
Strawberry Exhibition..206
Suffolk Co. Hort. Exhib'n206
Sundry Humbugs.....206
Tobacco Smoke for Sheep Ticks.....*Ill* 207
Typographical 206
Vermin on Cows.....207
Who Buys an Am. Watch?209

Back Volumes Supplied.—The back volumes of the *Agriculturist* are very valuable. They contain information upon every topic connected with rural life, out-door and in-door, and the last thirteen volumes make up a very complete library. Each volume has a full index for ready reference to any desired topic. We have on hand, and print from electrotype plates as wanted, all the numbers and volumes for thirteen years past, beginning with 1857—that is, Vol. 16 to Vol. 28, inclusive. Any of these volumes sent complete (in numbers) at $1.75 each, post-paid, (or $1.50 if taken at the office). The volumes, neatly bound, are supplied for $2 each, or $2.50 if to be sent by mail. Any single numbers of the past thirteen years will be supplied, post-paid, for 15 cents each.

Calendar for June.

Day of Month.	Day of Week.	Boston, N. England, N. York State, Michigan, Wisconsin, Iowa, and Oregon. Sun rises.	Sun sets.	Mo'n sets	N. Y. City, Ct., Philadelphia, New Jersey, Penn., Ohio, Indiana, and Illinois. Sun rises.	Sun sets.	Mo'n sets	Washington, Maryland, Virginia, Kentucky, Missouri, and California. Sun rises.	Sun sets.	Mo'n sets
		H. M	H. M	H. M.	H. M	H. M	H. M.	H. M	H. M	H. M.
1	W	4 25	7 30	9 36	4 31	7 24	9 31	4 36	7 19	9 25
2	T	4 25	7 30	10 25	4 30	7 25	10 20	4 36	7 19	10 15
3	F	4 25	7 31	11 11	4 30	7 26	11 6	4 36	7 20	11 1
4	S	4 24	7 32	11 49	4 30	7 26	11 46	4 35	7 21	11 42
5	S	4 24	7 32	morn	4 29	7 27	morn	4 35	7 21	morn
6	M	4 24	7 33	0 26	4 29	7 28	0 23	4 33	7 22	0 20
7	T	4 23	7 33	0 59	4 29	7 28	0 57	4 34	7 23	0 55
8	W	4 23	7 34	1 29	4 29	7 29	1 29	4 34	7 23	1 28
9	T	4 23	7 35	1 59	4 28	7 30	2 0	4 34	7 24	2 0
10	F	4 23	7 36	2 31	4 28	7 30	2 33	4 34	7 24	2 35
11	S	4 22	7 36	3 07	4 28	7 31	3 9	4 34	7 25	3 12
12	S	4 22	7 37	3 45	4 28	7 31	3 48	4 34	7 25	3 53
13	M	4 22	7 37	rises	4 28	7 32	rises	4 34	7 26	rises
14	T	4 22	7 38	8 54	4 28	7 32	8 49	4 34	7 26	8 43
15	W	4 22	7 38	9 47	4 28	7 32	9 42	4 34	7 26	9 37
16	T	4 22	7 38	10 32	4 28	7 33	10 28	4 34	7 27	10 23
17	F	4 22	7 39	11 9	4 28	7 33	11 5	4 34	7 27	11 2
18	S	4 22	7 39	11 41	4 28	7 33	11 38	4 34	7 28	11 35
19	S	4 22	7 39	morn	4 28	7 34	morn	4 34	7 28	morn
20	M	4 23	7 40	0 7	4 29	7 34	0 6	4 34	7 28	0 4
21	T	4 23	7 40	0 33	4 29	7 34	0 32	4 34	7 28	0 31
22	W	4 23	7 40	0 57	4 29	7 34	0 58	4 35	7 28	0 58
23	T	4 23	7 40	1 22	4 29	7 34	1 23	4 35	7 29	1 24
24	F	4 23	7 40	1 47	4 29	7 35	1 49	4 35	7 29	1 52
25	S	4 24	7 41	2 16	4 30	7 35	2 19	4 35	7 29	2 23
26	S	4 24	7 41	2 49	4 30	7 35	2 53	4 36	7 29	2 57
27	M	4 24	7 41	3 27	4 30	7 35	3 32	4 36	7 29	3 36
28	T	4 25	7 40	sets	4 29	7 35	sets	4 37	7 29	sets
29	W	4 25	7 40	8 21	4 29	7 35	8 16	4 37	7 29	8 11
30	T	4 26	7 40	9 10	4 29	7 35	9 5	4 37	7 29	9 6

PHASES OF THE MOON

MOON.	BOSTON.	N. YORK.	WASH'N.	CHA'STON	CHICAGO.
	D. H. M.	H. M.	H. M.	H. M.	H. M.
1st Quart..	6 6 32 ev.	6 20 ev.	6 8 ev.	5 56 ev.	5 26 ev.
Full.....	13 9 3 m.	8 51 m.	8 39 m.	8 27 m.	7 57 m.
3d Quart...	20 4 50 ev.	4 38 ev.	4 26 ev.	4 14 ev.	3 44 ev.
New Moon	28 6 49 ev.	6 37 ev.	6 25 ev.	6 13 ev.	5 43 ev.

AMERICAN AGRICULTURIST.

NEW YORK, JUNE, 1870.

Farmers who have their work properly planned and laid out, will find little time for reading. We would remind those who look to us for hints, that the moist and fertile soil, as it warms under the summer sun, will give life to thousands of weeds, which must be despatched *now*, in their seed-leaf and tender beginning, or day by day the labor of subduing them will be increased. Procure early, suitable implements for all farm work, and keep tools sharp and clean. Sets of duplicate tools to supply the places of those particularly liable to be broken are of great service.

Hints About Work.

Clean out the Barns.—This is the only time in the whole year when the barns may be emptied of every thing. It is barn-cleaning time as much as April is house-cleaning time. If you have several tons of old hay, let it alone—but if the mows and bays are pretty low, make a clean sweep, and see the poles and timbers everywhere. Most of the stock are then in the pastures, and stable floors can be lifted and examined. Timbers may be decaying, and should be renewed. Accumulations will almost surely be found under the floors and near the timbers which may soon cause decay unless removed, and which will be valuable additions to the compost heap. Soon the hay will be coming in; and so this work must be done betimes. Store old hay and straw where they can be conveniently got at after the barns are full.

Rainy-day Work.—Other work for rainy days is mending rakes, horse-rakes, and forks—fitting up the hay-rigging for the waggons; examining and putting the mowing machines in order. The clover will be fit to cut before we are ready for it—it almost always is.

Compost for Grass Land.—As soon as the hay is off, is the best time to put on manure. A good fine compost containing, say, six loads of yard manure and ten of muck to the acre, with a few bushels of ashes and some plaster, having been wetted a few times with barn-yard liquor and turned and mixed well, will make the second crop of clover fairly jump, and produce good rowen.

Indian Corn.—It depends upon the weather of the last of May whether we are able to get the bulk of the corn crop well planted and hoed once before this month comes in. In fact, half the crop is often planted in June. It never begins to grow much until *hot* weather; and so the first week in June is not too late for a good crop. Use early sorts so as to avoid damage from early frosts. Soak corn for late planting, tar it, and roll in plaster. Hoe as far as possible with horse-power, employing boys to go through and hand-pull weeds. Horse-hoes for two horses, having a seat for the driver, make this labor comparatively light; the work is much better done than formerly, and corn may be oftener tilled.

Potatoes are greatly benefited by stirring and loosening the soil between the rows. Hilling should never be done after the plant is 8 inches high, as it causes additional tuber-bearing roots to be thrown out, and hence two or more crops of potatoes of inferior size. Take out grass and weeds close to the plants by hand.

Pasture-land.—Top-dress with plaster, leached or quick ashes, bone-dust, or any hand manure. Bone-dust 2 bushels, wood-ashes (quick) 4 to 6 bushels, plaster 1 bushel, makes an admirable top-dressing for any kind of grass land. It is excellent also for potatoes and for corn. If it stand three weeks, and is well shoveled over two or three times, it is much improved. Take the stock off top-dressed land until after a soaking rain.

Mowing-land.—Early in the month go through the grass after a rain, and pull docks and other coarse weeds. Only a careful *man* should be trusted to do this work; boys are not careful enough nor strong enough; and with the best will, will tug and strain at a big root and trample down a square yard of grass. Begin mowing as soon as the clover blossoms, and before the ox-eyes are out. When the latter abound, the grass should be cut before they come into full blossom, as fewer seeds will mature, and the hay from them will be much better. If the weather be favorable, and the grass light, that cut with a machine after 5 P. M., may be put in windrows before 12 o'clock the next day, and got in the same afternoon, without turning or shaking out, and make almost first quality hay. Heavy clover may be cut at evening or after the dew is off in the morning, and be tossed and tedded constantly until it can be raked up, say 2 o'clock, then put in cocks; shaken out by 9 or 10 the next day, tossed and turned repeatedly, and secured in the afternoon. Clover hay ought not to be too dry, and should either be cured in masses or kept warm either by its own heat, which is apt to go too far, or by constant airing and sunning. In "catching weather" *Hay Caps* are often exceedingly useful, paying for themselves by shielding the hay from a single storm. The best size is probably 4½ feet square.

Salting Hay.—Six quarts of fine salt to the ton are about right, and will go far towards preventing musty mows. If the hay (clover) is very green, 12 quarts to half a bushel are sometimes applied. This may be, however, too much for the good of the stock, unless they have other hay at the same time.

Mowing Machines and horse-rakes are indispensable adjuncts to meadow farming. The horse-fork is nearly as important, and the Tedder is fast asserting its claims. Bullard's tedders of this season, we think, surpass those previously introduced in strength, handiness, and ease of draft.

Field Beans.—Get them in as early as the ground can be well prepared. The Marrow is the favorite kind in market. The Blue-pod does better for later planting; and where corn has missed, or as a "stolen crop" with corn. The little Pea-bean is always salable. See Basket item for quantity of seed per acre of each kind.

Pumpkin and Squash seed may be planted early in the month, best by themselves; but if among corn, give a little extra manure.

Corn Fodder.—Sow as directed in last month's Basket for succession of green forage or for drying.

Forage Crops.—Nothing produces better green or dry fodder than Indian corn; but this requires a soil in good heart. Millet or Hungarian grass may be sown upon light, clean land, with a dressing of

fine manure, guano, or superphosphate. They do best in drills, but are usually sown broadcast, grow rapidly, and if put in as late as July 1st, will make a heavy crop of hay. Half a bushel of seed (20 to 24 pounds) of Hungarian grass is enough for an acre.

Peas for Seed.—Sow early in the month in good soil not freshly manured; the seed will be less in quantity than if earlier, but free from weevil.

Clover for Seed.—Cut clean clover early from which a crop of seed is desired, and top-dress with plaster or superphosphate, which always contains plaster. (The seed comes from the second crop.)

Roots.—Carrots and Parsnips may be sown thus late; the former will make a good crop, the latter a fair one. Beets, (Mangels or Sugar) will also give, in rich soil, a remunerative return for labor. Swedish Turnips for cattle should be sown this month; but if intended for market and the table, it is better to wait until the 1st to 20th of July. A good superphosphate is the best manure for turnips; it may, conveniently, be sowed in the drills, after the ground is marked out, with the seed sower, which, immediately after, is used for sowing the seed. Use as little seed as possible in sowing Swedes, and put the drills 30 inches apart, and thin to a foot.

Tobacco.—Weed the seed-beds, and see to it that you have plants forward enough to commence setting about the 15th. Plow and harrow the field, and kill another crop of weeds just before setting; mark off as for corn-planting 3 feet each way; or, the rows 3 feet, and the cross marks for the plants 30 inches apart. Replace at once plants cut off by the worm, or failing from other causes.

Cattle at pasture must be visited frequently, and a lookout kept lest the water fails, or the grass is cropped too close.

Working Oxen should not be hard pressed during the middle of the day when the heat is excessive.

Cows should have good upland pasturage, and plenty of water. An armful of some green forage at noon, even when they have an abundance of grass, will be eaten with a relish, and if given regularly, will considerably increase the flow of milk.

Calves two or three months old may be turned to grass, getting a few quarts of skimmed milk daily at noon, which will be all the better for them if thickened with a little Indian meal.

Beef Cattle should have the richest clover pasturage, and two feeds of meal a day besides, if they will eat it. The quicker they fatten the better.

Mares about to foal, or with foals at foot, should have the range of sweet upland pastures, with water and salt. Take a mare which is to breed the coming year to the stallion on the 9th day after foaling.

Sheep are generally washed and shorn this month. We deprecate washing, though it seems almost necessary. A little practice and care in tub-washing fleeces would, we are confident, do away with objections to tub-washed wool; and if washing the sheep could be avoided, their health, and of course the quality of the wool, would be improved. Grease newly shorn sheep on the back to prevent sun-scalding.

Butter.—The Prize Essay on another page makes it unnecessary to drop hints here about butter making. June butter ought to be the best made in the year, as the grass has a higher and better flavor.

Work in the Horticultural Departments.

With so many things calling us outside, we can hardly have patience this bright May day to write about work, we much prefer to do it. Such a rush has been the early part of May. The season seems to have forgotten all moderation, and come upon us with a leap. We have had the impression that whether spring seemed early or late, everything came out about the same, the first of June.

Orchard and Nursery.

With established trees, the chief things to do are to thin the fruit and keep the insects in check.

Thinning is too little practised; but one who tries it once will be apt to follow it, if he raises good fruit. When the fruit is fairly set, thin out one-third or one-half. The nutriment that would have been divided among all, had they remained, will now be appropriated by only half as many, and the result will be fine, large specimens. It may be necessary to make a second thinning, as few have courage to thin sufficiently at first. As to

Insects, do not wait until some of the legion have made sad havoc, and then write to us for a remedy which shall despatch them at one application. We know of no sovereign cure for insects or weeds except work. One should be among his trees frequently, and note the first inroads. The eye should be trained to notice the beginning of trouble. The caterpillars that are to-day feeding upon the leaves of one twig only, in a week will have scattered over the whole tree. Neglect the little web that is just observable, and in a short time the tree will look as if a blight had fallen upon it. The nests of the tent-caterpillar are easily pulled out by a gloved or bare hand. Take them early in the morning when the inhabitants are at home.

The Curculio is only to be caught by jarring the tree. It will fall and may be caught on a sheet. Let all secret insect remedies alone.

Borers.—We are accustomed to speak of "the borer," when there are several, but they are all alike in being hatched from eggs laid upon the bark of the tree by the mother insect. The eggs are usually deposited this month; various obstacles to the insect have been proposed; about the simplest of them is to wrap the lower part of the trunk of the tree with coarse paper, the lower edge of the paper going just below the surface of the soil, and the other extending about a foot above it.

Slugs which attack the leaves of pear and cherry trees are destroyed by a dusting of lime.

Grafts must be looked after. If two were put in where but one is needed, cut one out. If the growth of the graft is one-sided, or one of its several shoots gets the better of the others, pinch the end of the strong grower.

Pruning is done this month by many, as the wounds heal most readily. Others object to any other than winter pruning, on account of the check to the tree by removing so much foliage.

Young Trees.—Attention to young trees will avoid the necessity of pruning large limbs hereafter. Shoots will become branches; if they grow where branches are not needed, remove them while young; better to have done it when the bud was first pushing, but if done while the wood is still tender, it will save much cutting. It will be a great help to young trees to mulch them with litter of some kind.

Pinching.—The nipping of the growing point of a tender shoot, of course stops it from prolonging. One of its upper buds will probably push again; but the growth will be checked, neighboring and weaker shoots will have a chance to grow, and thus control the growth and shape of the young tree.

Seedlings.—Keep young seedling trees well weeded and cultivated. Shade young evergreens and deciduous forest trees.

Fruit Garden.

Grape-Vines.—Vines planted this spring should have but one shoot allowed to grow. Tie up the young shoots, handling carefully to avoid breaking. If too much fruit is left upon the vines, thin early. As the laterals push, pinch back to one leaf. Layers may be made of the present season's growth.—Use the hoe around the vines, and hand-pick beetles and caterpillars. Use sulphur, applied by a bellows, on the first appearance of mildew.

Strawberries.—Upon beds not covered, put on a mulch to keep the fruit clean, unless the vines are grown in matted beds, when it is not necessary; straw, hay, or corn-stalks are used. In marketing berries give full measure, and let the baskets run of even quality throughout. Reject all sandy or over-ripe berries. Make pot-layers which may be planted as soon as well rooted; they will bear next year.

Currants.—Use powdered white hellebore for insects which attack the leaves. Mulching will increase the size of the fruit. Remove superfluous shoots and thus save pruning.

Gooseberries are usually marketed green. They are most expeditiously cleaned from leaves and sticks by allowing them to roll down an inclined trough.

Raspberries.—Tie up the new growth, three or four canes to a stool, and remove all others.

Blackberries.—Stop the growth of new canes when 4 or 5 feet high. Tie up fruiting canes. Hoe up all suckers not needed for planting.

Dwarf Fruit Trees will need the attention in thinning, pinching, and keeping free of insects as noted for trees in the orchard.

Kitchen Garden.

The contest with weeds must be kept up. It makes a great difference which gets the advantage of the start. The ease with which weeds can be destroyed in their young state, is in marked contrast with their persistence when of larger size.—Much weed killing can be done with a rake. Have one with sharp, steel teeth, and use it frequently. We use Comstock's hand cultivator with much satisfaction.

Asparagus.—Many forget that next season's crop depends upon a good growth of tops after cutting stops. Do not cut too late. Hoe over the bed and it will be all the better if a dressing of bone or phosphate can be given.

Beans.—Bush and running varieties may still be planted. For Limas, set poles 6 or 8 feet high, 4 feet each way, and make a rich spot to receive the beans. Plant 5 or 6 beans, by pushing them into the ground eye downward, and covering about an inch. Leave 4 plants to a pole, and twine them about it if they do not climb of their own accord.

Beets.—Weed and thin. We always sow rather thickly in order to have a plenty of young beets to use as spinach.

Cabbages and *Cauliflowers.*—Early sorts will now be ready for the table or market. Transplant second early, and sow late varieties.

Carrots.—Keep well cultivated. Sow seed.

Celery.—Take good care of the plants in seed-bed and keep free from weeds. See article on page 221.

Corn.—Sow every week or two for succession.—The late sowings should be of early kinds.

Capsicums or *Peppers.*—Give a warm rich place, and cultivate frequently.

Cucumbers.—Sow seed in rich hills 4 feet apart, using plenty of seed to guard against loss by bugs. When past danger take out all the plants but two.

Egg-Plants.—These need all the encouragement that frequent hoeing and liquid manure can give them. The Tomato-worm is fond of them.

Lettuce.—Sow for late supply, selecting a somewhat shaded and moist spot. See article on culture, last month.

Melons need the same care as cucumbers.

Onions.—Thorough weeding and frequent cultivation between the rows are essential to success.—Salt sown broadcast at the rate of 2 or 3 bushels to the acre is beneficial, as are dressings of wood-ashes.

Parsnips need working until the leaves prevent.

Peas.—Plant for late crop if you choose to run the risk of mildew.

Radishes.—Sow now and then for succession.

Rhubarb.—Keep the flower-stalks cut off, as they needlessly exhaust the plants.

Ruta-bagas.—The variety known as the Long White French cannot be too highly commended for family use. Sow the latter part of the month; and if insects trouble the young plants, dust with ashes or plaster.

Spinach.—Sow the New-Zealand for summer use, three or four plants to a hill, which should be rich, and about 6 feet apart, as the plant spreads.

Salsify.—Sow if not already done, and cultivate the same as parsnips.

Squashes.—See last month's notes for directions.

Sweet Potatoes.—In most northern localities the

first week in June is early enough to set the plants. See notes and page 175 last month.

Tomatoes.—As the vines grow, keep tied up to a trellis, or place brush to keep them from the ground.

Flower-Garden and Lawn.

Lawns.—Mow often and leave the clippings on the grass. A few hours of sun make them invisible, and they serve both as mulch and manure.

Bedding Plants will now need attention. Keep the weeds down until the plants cover the beds.

Annuals may be transplanted and seed be sown.

Tuberoses need a warm and rich spot. Plants that have been started under glass may be obtained and will grow rapidly.

Bulbs.—Do not remove the leaves from those that have passed out of flower until they begin to turn yellow. Take up Hyacinths, Tulips, Narcissuses as soon as the failure of the leaves shows that the growth is over. Spread under cover until the leaves are dry, and then store in a cool and dry place until time to plant in the fall.

Roses.—When the Remontants pass out of flower, cut them back. Remove the remains of the flowers of the Ever-blooming varieties. Shake off rose-bugs.

Neatness is secured by constant attention to little things. Keep straggling plants tied up. Remove unsightly flower-stalks unless seeds are wanted.—Rake off remains of flowers and dead leaves. Clip or pinch shrubs disposed to grow out of shape.

Green-house and Window Plants.

These will likely all be out of doors, and they must be disposed of according to their needs.—Some may be set in full sun, while Fuchsias, Camellias and other broad-leaved evergreens need a partial shade. Some may be disposed of as ornaments to the veranda, while others may be plunged in the borders. Place a little coal-ashes under plunged plants to keep worms from entering. The earth in the pots dries rapidly, and care must be taken that they do not suffer for want of water. The pots containing tall plants should be protected from strong winds. Procure sods for potting soil, and look after supplies of manure.

Lightning-Rods.

The peeping of frogs is no surer indication of the opening of spring, than is the appearance of the lightning-rod pedlers. There may be some respectable men engaged in hawking about lightning-rods, but most we have met are unmitigated nuisances. Our letters indicate that many of them are swindlers, and that when one gets a chance at a house, the owner is made to pay roundly. There has been so much that is unpleasant and suspicious attached to the lightning-rod business, that some whose opinions are regarded as authority, have asserted that all lightning-rods are humbugs. We cannot agree with this view, but think that a properly constructed rod is a protection. There are many cases in which buildings furnished with rods have been injured by lightning; this is no testimony against lightning-rods in general, but only against those particular pieces of work. The kinds of rod offered for sale are numerous; and by twists and other externals are made to look very unlike. The cheapest material is iron; copper is a better conductor, but its expensiveness leads to the use of a larger rod of iron. A solid iron rod ¾ of an inch in diameter, is found to be best and cheapest. It should be as continuous as possible, using screw couplings where the lengths cannot be welded. The rod may be painted black as a protection against rust. Iron fastenings are as good as the glass insulators, sometimes used. When glass is wet, the insulating power is destroyed. The upper end should terminate in one or more platinum points. Merely covering with gold-leaf is a poor protection against rusting. The lower end of the rod should terminate in permanently moist ground. All the better if it can terminate in a well, below the lowest point the water ever reaches. In cities, the lower end of the rod may connect with the main gas or water pipes. A tin or other metallic roof should be connected with the rod. The number of rods required will depend upon the size of the surface to be protected; the rule given by electricians is, that a rod will protect a space around in every direction from its base equal to twice its hight. In practice we believe rods are put nearer together than this rule would require. There are no objections, save those of expense and appearance, to having any number of rods, provided they are properly constructed. We have given what are considered by the best authorities the essential requisites in a lightning-rod. The various "improvements" which have been patented from time to time are not considered to be of practical importance. We believe that our best constructors of rods do not claim to have any patent about the matter. If some one would make and advertise platinum points, any person could put up his own rod, with the aid of a blacksmith.

Commercial Matters—Market Prices.

The following condensed, comprehensive tables, carefully prepared specially for the *American Agriculturist*, show at a glance the transactions for the month ending May 13, 1870, and for the corresponding month last year.

1. TRANSACTIONS AT THE NEW YORK MARKETS.

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	231,000	986,000	243,500	12,500	139,000	230,000
27 days *last* m'th.	221,500	478,000	153,000	2,650	313,000	217,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days *this* m'th.	243,000	2,414,000	1,170,000	26,000	154,000	1,206,000
27 days *last* m'th.	216,000	1,485,000	897,000	18,500	321,000	659,000

2. *Comparison with same period at this time last year.*

RECEIPTS.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	231,000	986,000	243,500	12,500	139,000	230,000
26 days 1869	182,000	387,000	541,000	11,000	41,000	237,000
SALES.	*Flour.*	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
25 days 1870	243,000	2,414,000	1,170,000	26,000	154,000	1,206,000
26 days 1869	217,000	1,098,000	1,448,500	76,500	121,000	986,000

3. *Exports from New York, Jan. 1 to May 13:*

	Flour.	*Wheat.*	*Corn.*	*Rye.*	*Barley.*	*Oats.*
1870	570,343	3,993,275	108,046	6,708	——	9,103
1869	337,389	2,643,860	1,173,235	——	——	39,583
1868	319,202	1,708,175	2,909,014	153,093	——	36,469

4. *Stock of grain in store at New York:*

1870.	*Wheat,* bush.	*Corn,* bush.	*Rye,* bush.	*Barley,* bush.	*Oats,* bush.	*Malt,* bush.
May 10	1,158,052	110,829	20,502	126,043	440,517	83,000
April 11	1,845,186	285,946	23,249	187,172	756,811	99,988
March 7	2,509,608	484,176	39,089	278,905	1,105,194	97,139
Feb. 11	2,902,638	534,003	62,112	322,425	1,199,672	36,214
Jan. 12	4,423,028	591,903	38,289	34,900	1,310,935	85,405
1869.						
Dec. 11	3,810,562	833,909	50,043	285,906	1,386,594	77,097
Nov. 10	1,616,020	693,085	31,700	31,584	281,581	66,782
Oct. 11	978,372	445,068	34,467	5,948	120,950	67,694
Sept. 6	745,121	127,736	56,081	——	133,920	134,870
Aug. 9	634,262	253,155	75,797	361	50,219	105,458
July 10	531,657	328,613	71,418	2,966	259,985	97,177
June 7	637,877	385,241	107,546	383	555,993	109,746
May 11	1,056,048	394,156	107,502	17,684	613,166	77,677
Apr. 10	1,684,633	1,080,769	165,003	48,281	1,178,740	66,664

CURRENT WHOLESALE PRICES.

	April 14.	May 13.
PRICE OF GOLD	112¾	114¼
FLOUR—Super to Extra State	$4 30 @ 5 45	$4 90 @ 5 90
Super to Extra Southern	5 25 @ 9 75	6 25 @10 00
Extra Western	4 55 @ 9 25	5 25 @ 9 75
Extra Genesee	5 75 @ 7 25	6 00 @ 8 00
Superfine Western	4 20 @ 4 50	4 90 @ 5 20
RYE FLOUR	3 90 @ 5 00	4 30 @ 5 65
CORN-MEAL	4 30 @ 5 25	4 75 @ 5 80
WHEAT—All kinds of White	1 27½@ 1 60	1 35 @ 1 85
All kinds of Red and Amber	95 @ 1 25	1 00 @ 1 36
CORN—Yellow	1 08 @ 1 10	1 17 @ 1 20
Mixed	90 @ 1 10	1 04 @ 1 17
OATS—Western	57 @ 68	64½@ 70
State	64 @ 68	69 @ 70
RYE	95 @ 1 10	1 03 @ 1 14
BARLEY	70 @ 1 10	70 @ 95
HAY—Bale ₱ 100 lb	80 @ 1 15	90 @ 1 25
STRAW, ₱ 100 lb	65 @ 1 00	80 @ 1 00
COTTON—Middlings, ₱ lb	23¾@ 24¼	23½@ 24¼
HOPS—Crop of 1869, ₱ lb	10 @ 25	10 @ 25
FEATHERS—Live Geese, ₱ lb	80 @ 85	80 @ 85
SEED—Clover, ₱ lb	14¼@ 14¾	14 @ 14¾
Timothy, ₱ bushel	6 25 @ 6 75	7 50 @ 8 00
Flax, ₱ bushel	2 10 @ 2 20	2 15 @ 2 25
SUGAR—Brown, ₱ lb	8 @ 11¼	8 @ 11½
MOLASSES, Cuba, ₱ gal	20 @ 45	20 @ 45
COFFEE—Rio, (Gold, in bond)	9¾@ 13½	10 @ 14
TOBACCO, Kentucky, &c., ₱ lb	7 @ 13½	6 @ 13
Seed Leaf, ₱ lb	8 @ 65	8 @ 70
WOOL—Domestic Fleece, ₱ lb	42 @ 66	40 @ 63
Domestic, pulled, ₱ lb	22 @ 46	20 @ 47
California, unwashed	15 @ 32	15 @ 29
TALLOW, ₱ lb	9¼@ 9¾	9¼@ 9¾
OIL-CAKE—₱ ton	35 00 @39 00	39 00 @40 00
PORK—Mess, ₱ barrel	27 75 @28 00	29 12 @29 50
Prime, ₱ barrel	20 50 @21 50	22 00 @23 50
BEEF—Plain mess	8 00 @14 00	10 00 @18 50
LARD, in trcs. & barrels, ₱ lb	14¼@ 16½	15 @ 17
BUTTER—Western, ₱ lb	15 @ 28	20 @ 35
State, ₱ lb	18 @ 38	20 @ 33
CHEESE	6 @ 16½	6 @ 17½
BEANS—₱ bushel	1 20 @ 2 40	1 20 @ 2 50
PEAS—Canada, in bond, ₱ bu	1 10 @ 1 25	97 @ 1 00
EGGS—Fresh, ₱ dozen	27 @ 29	16 @ 18½
POULTRY—Fowls & Chickens	21 @ 24	20 @ 21
Turkeys, ₱ lb	26 @ 29	21 @ 22
Geese, ₱ lb	16 @ 18	15 @ 18
POTATOES, ₱ bbl	1 25 @ 2 00	1 00 @ 2 00
New Bermudas, ₱ bbl	8 50 @10 00	7 00 @ 8 00
APPLES—₱ barrel	3 00 @ 5 25	1 50 @ 4 50
SWEET POTATOES, ₱ bbl	— @ —	— @ —
TURNIPS—₱ bbl	1 50 @ 2 00	— @ —
CABBAGES—₱ 100	6 00 @10 00	7 00 @10 00
ONIONS—₱ bbl	4 50 @ 5 50	4 00 @ 7 00
CRANBERRIES—₱ bbl	16 00 @22 00	— @ —
BROOM-CORN—₱ lb	11 @ 15	10 @ 14
Tomatoes, new, per box	— @ —	75 @ 1 00
Peas, green, per crate	— @ —	1 50 @ 3 00
Rhubarb, per 100 bunches	— @ —	2 50 @ 4 50
Asparagus, per bunch	— @ —	25 @ 40

Gold has been in more active, speculative demand and has advanced.....There has been more inquiry for the leading kinds of Breadstuffs, the offerings of which have been less extensive, and prices have been quoted firmer.....Provisions have been more sought after at higher rates, but close less buoyantly.....Cotton has been in active request, and has been quoted dearer.....Wool has been very slow of sale, though buyers have had every existing advantage as to price.....Tobacco, Hay, and Seeds have been in fair demand; Grass seeds have been much firmer.....Hops have been quiet, but steady.

New York Live-Stock Markets.—

WEEK ENDING.	*Beeves.*	*Cows.*	*Calves.*	*Sheep.*	*Swine.*	*Tot'l.*
April 18th	5,778	123	2,459	17,361	10,171	35,892
do. 26th	6,003	68	3,569	18,432	12,730	35,802
May 3d	6,416	74	4,813	11,434	15,197	37,934
do. 10th	6,924	66	4,083	15,346	18,985	45,404
Total in 4 Weeks	25,121	331	14,924	57,573	57,083	155,032
do. *for prev. 4 Weeks*	22,325	532	5,835	63,021	42,579	134,282

	Beeves.	*Cows.*	*Calves.*	*Sheep.*	*Swine.*
Average per Week	6,280	84	3,731	14,393	14,271
do. do. *last Month*	5,581	133	1,459	15,755	10,645
do. do. *prev's Month*	6,069	130	790	25,202	13,785
Average per Week, 1869	6,275	92	1,752	28,836	15,348
do. do. do. 1868	5,733	105	1,583	27,182	18,809
do. do. do. 1867	5,544	64	1,320	22,154	20,605
do. do. do. 1866	5,748	94	1,200	20,000	13,000
do. do. do. 1865	5,255	118	1,500	16,091	11,023
Total in 1869	326,280	4,837	91,033	1,499,500	798,199
Total in 1868	298,128	5,466	82,571	1,413,479	978,061
Total in 1867	293,832	3,369	69,911	1,174,154	1,102,643
Total in 1866	298,880	4,885	62,420	1,040,000	672,000
Total in 1865	270,274	6,161	77,991	836,733	573,150
Total in 1864	267,609	7,603	75,621	782,462	660,277

Beef Cattle.—The supply of stock has been a little larger for the past month and of better quality. The prices paid range about as those given for last month, and the market is firm. We notice some few early "grass" beeves in market. They look plump, but butchers are rather shy of such stock. Early "grass" beef is apt to dress light, and some butchers found their stock to have cost as high as 19c. per pound. Prices run very even; 17½ being the top of the market for best grades. Some few extras brought 18c., but the majority of good cattle brought only 17c. per pound. The quality has so much improved in the past week or two that few sales are made below 13c., and these for bulls and cows. There has been some call for working cattle, but none were on sale. Below we give the range of prices, average price, and figures at which the largest lots were sold.

Apr. 18, ranged 12¼@17½c. Av. 15½c. Large sales 14¼@16
do. 26th, do. 13½@17½c. do. 15¾c. do. do. 15 @16¼
May 3d, do. 13 @18c. do. 16 c. do. do. 15½@17
do. 10th, do. 13 @17½c. do. 16 c. do. do. 15½@16½

Milch Cows.—The arrivals have been rather small, and prices a little better. Milkmen are ready to pay $90@$100 for a good fresh cow, and even those of only medium quality bring good prices. Some fancy stock was sold as high as $110@$120 during the past month, but these were very extra cows. Prices may be quoted as $90@$100 for good, $80@$90 for medium, and less for poor cows.....**Calves** have been plenty and cheap this month, and prices have gone down proportionally, and the market rather dull. Good, fat calves may be had at from 9c.@10c., if very extra 10½ will be paid. Medium quality bring 8c.@8¾c., and buttermilk fed 6c.@7c., per pound.....**Sheep.**—There has been but little change since our last report. The quality of the stock offered is a little improved, and prices about the same. More sheep are coming in, minus their wool, and sell readily. Prices range from 5½c.@8c., with some very extra selling for 8¼c. per pound. Spring Lambs are beginning to come in quite plenty, and go quickly at about 15c.@18c. per pound.....**Swine.**—The trade keeps steady, and we note but little change. Almost all the hogs go direct to the slaughter-pens. We quote dressed hogs at from 11¼c.@12c. per pound.

Draining Ponds.

A farmer in Ohio has a farm with several ponds on it. He wishes to drain them, and the low land adjoining, with tiles, and wants to know what size of tiles will be needed, and whether he should put boards under the tiles; also whether it would not be well to dig a hole in the center of the ponds three or four feet deep, stone them up and have the drains run through them.—If the ground is firm, no boards are needed under pipe tiles. If the drains run through the ponds, three or four feet below the surface, and are covered with nothing but soil rammed in tight, they will work well and take off all the water they can carry. He need have no fears but that the water will find its way into the drain. Stones on the top of a tile-drain do more harm than good. We cannot tell the size of the tiles required. A common mistake is, to use too small tiles for the main drains and too large for the sub-drains. If cut in the spring, when the ponds are full of water, there will of course be more water for the drains to discharge, at first, than they will ever be required to carry again. We think the better plan would be, to first cut open ditches and let them remain open for a few weeks; and then, by putting single tiles of different sizes in the ditch, and ramming some clay on the sides to force all the water through the tiles, one can easily ascertain what sized tiles are required. The quantity of water a tile will carry off is surprising. A two-inch tile will carry off about 4 times as much as an inch-tile, and a three-inch about 9 times as much, and a five-inch about 25 times as much.

AMERICAN AGRICULTURIST.

ORANGE JUDD & CO., Publishers, 245 Broadway, N. Y. City.

ANNUAL SUBSCRIPTION TERMS (always in advance): $1.50 each for less than four copies: Four to nine copies, $1.25 each: Ten to nineteen copies, $1.20 each: Twenty copies and upwards, $1 each. Papers are addressed to each name.

26 26

TWENTY-SIX DAYS.

26 26

TWENTY-SIX WORKING DAYS will close the first half of 1870, and on *Thursday*, **June 30th,** we propose to withdraw our *general* offer of Premiums for this volume.

The above announcement is of special interest to two *classes which embrace* **all** OUR READERS.

THE FIRST CLASS, includes all those who have begun to make up lists of Subscribers to secure our Premiums. In almost every case a little vigorous effort, during the next 26 days, will fill up the list, or at least make it large enough to secure *some one* of the Premiums. For example, suppose one has been trying to get a Sewing Machine, and has sent more or less names for that premium. If enough names have not, and can not, be obtained for that, the names may apply on a list for a smaller premium. So we say, in all cases, get every subscriber possible this month, and then choose such a premium as the list actually obtained will call for. *We are anxious to have every one rewarded for all he or she has accomplished, whether it will be for our profit or not.*—**N. B.**—A great deal may be done during June in the way of getting subscribers, as noted below.

☞ THE SECOND CLASS takes in **Every one of our Readers** not included in the first class above. In the next column is a table of first-rate articles, offered to all those who secure the required number of subscribers, as noted against each article, AND many hundreds, yes **many** THOUSANDS, (**you** among the number) may easily collect names of subscribers enough during June, to secure the *free* reception of one or more of these valuable premiums. During every month of June, for many years past, a great number of persons have begun and completed just such lists, and obtained valuable premiums. Suppose **you** try it this month. One, two, or three subscribers a day, or evening, during the next 26 days, will procure a *large* premium. One subscriber only for every two, three, or four days or evenings, will secure a very good article. Run through the list and see what is offered.

Two "Remarks."

1st.—Two subscribers for the remaining half of this year will count in a premium list the same as one subscriber for the whole year.

2nd.—Persons too distant to respond before July 1st, may have sufficient time to do it after that date.

Now Then, who will take Premiums this month? *Everybody can find subscribers enough to get at least a small but valuable premium!*

[In the following table is given the price of each article, and the number of subscribers required to get it free, at $1.50 a year, *or* at the lowest club rate of $1 a year. For full descriptions of the articles send for our *Special Sheet.*]

Table of Premiums and Terms, For Volume 29—(1870).

Open to all—No Competition.

No.	Names of Premium Articles.	Price of Premiums.	Number of Subscribers required at $1.50	at $1.
1	*Shorthorn Bull*	$500 00	425	1250
2	*Shorthorn Bull*	$600 00	500	1500
3	*Shorthorn Bull*	$700 00	580	1700
5	*Ayrshire Bull*	$150 00	165	500
6	*Ayrshire Bull*	$200 00	210	650
7	*Alderney Bull*	$200 00	210	650
8	*Alderney Bull*	$300 00	300	900
9	*Alderney Bull*	$400 00	365	1050
10	*Devon Bull*	$100 00	120	350
11	*Devon Bull*	$150 00	165	500
12	*Devon Bull*	$200 00	210	650
13	*Cotswold Ram*	$100 00	120	370
14	*Cotswold Ram*	$200 00	210	650
15	*Cotswold Ewe*	$100 00	120	350
16	*Cotswold Ewe*	$150 00	165	500
17	*Southdown Ram*	$100 00	120	350
18	*Southdown Ram*	$150 00	165	500
19	*Southdown Ewe*	$75 00	100	285
20	*Southdown Ewe*	$100 00	120	350
21	*Chester White Pig*	$30 00	46	150
22	*Essex Pig*	$50 00	66	225
24	*Houdan Fowls, one Pair*	$10 00	50	150
25	*Creve Cœur Fowls, one Pair*	$10 00	50	150
26	*Black Spanish Fowls, one Pair*	$20 00	30	97
27	*Brahmas, Light, one Pair*	$15 00	22	75
28	*Gold Laced Sebright Bantams, one Pair*	$15 00	22	75
29	*Bresee's King of the Earlies, (2 lb. parc.)*	$2 00	5	22
30	*Norway Oats, (1 peck, Ramsdell & Co.)*	$2 75	7	27
31	*Garden Seeds for a Family (40 kinds)*	$5 00	13	37
32	*Flower Seeds for a Family (100 kinds).*	$5 00	13	37
33	*Garden Seeds & Flower Bulbs (Selection)*	$2 00	5	22
34	*Nursery Stock (any kinds desired)*	$20 00	30	97
35	*Set of Field Croquet*	$8 00	16	52
36	*Sewing Machine (Grover & Baker)*	$55 00	60	240
37	*Sewing Machine (Florence)*	$63 00	70	275
38	*Sewing Machine (Wilcox & Gibbs)*	$55 00	60	240
39	*Lamb Knitting Machine*	$60 00	67	270
40	*Washing Machine (Doty's)*	$14 00	21	70
41	*Clothes Wringer (Best—Universal)*	$10 00	18	58
42	*Tea Set (Hart's best Silver Plated)*	$50 00	66	225
43	*Caster and Fruit Basket (do. do.)*	$30 00	44	140
44	*Cake Basket (do. do.)*	$12 00	19	65
45	*Revolving Butter Cooler (do. do.)*	$8 00	16	52
46	*Ice or Water Pitcher (do. do.)*	$18 00	27	90
47	*One Dozen Tea-spoons (do. do.)*	$6 00	15	45
48	*One Dozen Table-spoons (do. do.)*	$12 00	19	65
49	*One Dozen Table Forks (do. do.)*	$12 00	19	65
50	*Knives and Forks (Patterson Bros.)*	$14 00	21	70
51	*Knives and Forks (do. do.)*	$18 50	27	90
52	*Knives and Forks (do. do.)*	$22 00	33	110
53	*Knives and Forks (do. do.)*	$25 50	39	124
54	*Carver and Fork (do. do.)*	$5 00	13	37
55	*Fluted Steel (do. do.)*	$2 50	6	25
56	*Pocket Knife (J. P. Swain)*	$1 50	4	
57	*Pocket Knife (do. do.)*	$2 00	5	22
58	*Pocket Knife (do. do.)*	$2 50	6	25
59	*Ladies' Pocket Knife (do. do.)*	$2 00	5	22
60	*Melodeon, 4-octave (G. A. Prince & Co.'s)*	$67 00	78	235
61	*Melodeon, 5-octave (do. do.)*	$112 00	138	400
62	*Piano, Splendid 7-oct. (Steinway & Sons)*	$650 00	540	1600
63	*Colibri Piano (Mathusheck P. F. Co.)*	$450 00	380	1150
64	*Silver Watch (American Watch Co.)*	$40 00	50	150
65	*Ladies' Fine Gold Watch (Am. Watch Co.)*	$100 00	110	350
66	*Breech-loading Pocket Rifle*	$16 00	24	80
67	*Double Bbl. Gun, (Cooper, Harris & H.)*	$30 00	46	150
68	*Repeating Shot Gun (Roper Sp A. Co.)*	$75 00	92	312
69	*Tool Chest (Patterson Bros.)*	$44 50	60	190
70	*Case of Mathematical Instruments*	$9 00	18	55
71	*Case of Mathematical Instruments*	$15 00	22	75
72	*Gold Pen, Sil. Case, E. (Warren & Spadone)*	$4 50	11	35
73	*Gold Pen and Silver Case, F. (do. do.)*	$5 50	14	42
74	*Ladies' Gold Pen and Rubber Case (do.)*	$6 00	15	45
75	*Charles Pratt's Astral Oil (1 can, 5 Gal.)*	$4 00	9	32
76	*Barometer (Woodruff's Mercurial)*	$10 00	18	58
77	*Barometer (Woodruff's Mercurial)*	$15 00	22	75
78	*Buckeye Mowing Machine, No. 2.*	$125 00	150	450
79	*Patent Cylinder Plow, (R. H. Allen & Co.)*	$18 00	27	90
80	*Collins & Co.'s Cast Cast-Steel Plow*	$25 00	38	120
81	*Hand Cultivator and Weeder (Comstock)*	$9 00	17	54
82	*Pump and Sprinkler (Page's)*	$5 00	13	37
83	*Family Scales (Fairbanks' & Co.)*	$14 00	21	70
84	*Building Blocks (Crandall)*	$2 00	6	20
85	*Pocket Lanterns, One Dozen*	$9 00	17	54
86	*New American Cyclopedia (Appleton's)*	$80 00	96	325
87	*Worcester's Great Illustrated Dictionary*	$10 00	18	58
88	*Any Back Volume Agriculturist* (Discount, Postpaid.)	$1 75		20
89	*Any Two Back Volumes do.*	$3 50		29
90	*Any Three do. do.*	$5 25	13	88
91	*Any Four do. do. do.*	$7 00	15	47
92	*Any Five do. do. do.*	$8 75	17	54
	—(Each add'l Vol. at same rate)			
93	*Thirteen Vols. XVI. to XXVIII.*	$22 75	33	108
94	*Any Back Volume Agriculturist* (Discount, Postpaid.)	$2 50		24
95	*Any Two Back Volumes do.*	$5 00		86
96	*Any Three do. do. do.*	$7 50	16	48
97	*Any Four do. do. do.*	$10 00	18	60
98	*Any Five do. do. do.*	$12 50	21	71
	—(Each add'l Vol. at same rate)			
99	*Thirteen Vols. XVI. to XXVIII.*	$32 50	45	137
100	*A $10 Library (Your Choice)* (All sent paid through by Mail or Express)	$10 00	18	58
101	*A $15 Library do.*	$15 00	24	85
102	*A $20 Library do.*	$20 00	31	106
103	*A $25 Library do.*	$25 00	38	125
104	*A $30 Library do.*	$30 00	44	144
105	*A $35 Library do.*	$35 00	50	162
106	*A $40 Library do.*	$40 00	56	177
107	*A $45 Library do.*	$45 00	62	192
108	*A $50 Library do.*	$50 00	68	207
109	*A $60 Library do.*	$60 00	80	237
110	*A $75 Library do.*	$75 00	100	282
111	*A $100 Library do.*	100 00	125	360
112	*A Choice of Good Books (See Terms below).*		..	...

☞ *Every Premium article is New and of the very* **best** *manufacture. No charge is made for packing or boxing any article in our Premium List. The thirty-nine Premiums,* **Nos. 29** *to* **33, 56** *to* **59, 70** *to* **74,** *and* **88** *to* **112** *inclusive, will each be delivered* FREE *of all charges, by mail or express (at the Post-office or Express office nearest recipient), to any place in the United States or Territories. —The other articles cost the recipient only the freight after leaving the manufactory of each, by any conveyance specified.*

SPECIAL NOTES.

Read and carefully Note the following Items: (*a*) All subscribers sent by one person count, though coming from a dozen different Post-offices. But....(*b*) state with each name or list of names sent, that it is for a premium....(*c*) *Send the names as fast as obtained, that the subscribers may begin to receive the paper at once.* You can have all the present month, 26 working days, to fill up your list....(*d*) Send the exact money with each list of names, so that there may be no confusion of money accounts....(*e*) Old and new subscribers all count in premium clubs, but a portion, at least, should be new names; it is partly to get these that we offer premiums to canvassers. N.B.—The extra copy to clubs of ten or twenty is not given where premium articles are called for....(*f*) Specimen Numbers, Cards, and Show-bills, will be supplied free, as needed by canvassers, but they should be used carefully and economically, as they are very costly....(*g*) Remit money in Checks on New York Banks or Bankers, payable to order of Orange Judd & Co., or send Post-office Money Orders. If neither of these is obtainable, Register Money Letters, affixing stamps both for the postage and registry; put in the money and seal the letter in the presence of the Postmaster, and take his receipt for it. Money sent in any of the above ways is at our risk.

Description of Premiums.

Every Premium is described in the October Agriculturist, and also in a **Special Sheet,** *which will be sent* **free** *to every one desiring it. We have room here for the following only:*

No. 40.—Washing Machines.—For a long time we have annually tried many new Washing Machines, and "Doty's Paragon," which we have now used nearly five years, is the only one the "help" will use voluntarily. Send for full Descriptive Circulars to **R. C. Browing, 32 Cortlandt St., N. Y.,** or to **Metropolitan Washing Machine Co.,** Middlefield, Conn. It goes cheaply by freight or express.

No. 41—Clothes Wringing Machine.—A very useful, time-saving, strength-saving, clothes-saving implement, that should be in every family. The wringing of clothes by hand is hard upon the hands, arms, and chest; and the twisting stretches and breaks the fibres with lever power. With the Wringing Machine, the garments are passed rapidly between elastic rollers, which press the water out better than hand wringing, and as fast as one can pick up the garments. We have given thousands of these premiums, with almost universal satisfaction. They are made by the **Metropolitan Washing Machine Co.,** Middlefield, Ct.

Nos. 56, 57, 58, 59—Pocket Knives.—NOW FOR THE BOYS AND GIRLS!—These Premiums are among the most pleasing and useful that we have ever offered. Every boy, and girl, too, wants a pocket knife. We give them an opportunity to obtain a most valuable one for nothing but a little effort. These knives are made by **Mr. J. P. Swain,** whose work is equal to any done in this country or Europe. No. 56 is a neat, substantial Knife, with three blades and buck-horn handle. No. 57 is a still finer article, with four blades and buck-horn handle. No. 58 is an elegant Knife, with four blades and shell handle. No. 59 is a Ladies' Pocket Knife, a beautiful article, with four blades and shell handle.

Nos. 94 to 99.—Bound Volumes of the Agriculturist.—These are the same as Nos. 88 to 93 above, but are neatly *bound* in uniform style, and cost us more for binding and postage. Sent post-paid.

Nos. 100 to 111.—Good Libraries.—In these premiums, we offer a choice of **Books** for the **Farm, Garden,** and **Household.** The person entitled to any one of the premiums 100 to 111 may select any books desired from the list of our books published monthly, (see another page), to the amount of the premiums, and the books will be forwarded, Post or Express paid. $25 or $50 worth of books pertaining to the farm will give the boys new ideas, set them to thinking and observing, and thus enable them to *make their heads help their hands.* Any good book will, in the end, be of far more value to a youth than to have an extra acre of land on coming to manhood. The thinking, reasoning, observing man will certainly make more off from 49 acres than he would off from 50 acres without the mental ability which reading will give him. ☞ Let the Farmers of a neighborhood unite their efforts and get an agricultural Library for general use.

containing a great variety of Items, including many good Hints and Suggestions which we throw into smaller type and condensed form, for want of space elsewhere.

Postage 12 Cents a Year in Advance.—The postage on the *American Agriculturist* anywhere in the United States and Territories, *paid in advance*, is 3 cents a quarter, 12 cents a year. If not paid in advance, twice these rates may be charged.

How to Remit:—Checks on New York Banks or Bankers are best for large sums; made payable to the order of **Orange Judd & Co.**

Post-Office Money Orders may be obtained at nearly every county seat, in all the cities, and in many of the large towns. We consider them perfectly safe, and the best means of remitting fifty dollars or less, as thousands have been sent to us *without any loss.*

Registered Letters, under the new system, which went into effect Oct. 1, 1868, are a very safe means of sending small sums of money where P. O. Money Orders cannot be easily obtained. *Observe*, the *Registry fee*, as well as postage, *must be paid in stamps* at the office where the letter is mailed, or it will be liable to be sent to the Dead Letter Office. *Buy and affix the stamps both for postage and registry, put in the money, and seal the letter in the presence of the postmaster, and take his receipt for it.* Letters thus sent to us are at our risk.

Clubs can at any time be increased by remitting for each addition the price paid by the original members, if the subscriptions all date at the same starting point. The back numbers will, of course, be sent to added names.

Bound Copies of Volume XXVIII (1869) are now ready. Price, $2, at our office; or $2.50 each, if sent by mail. Any of the previous twelve volumes (16 to 28) will be forwarded at the same price. Sets of numbers sent to our office will be neatly bound in our regular style at 75 cents per vol., (50 cents extra, if returned by mail.) Missing numbers supplied at 12 cents each.

VALUABLE BOOK—FREE!—The Publishers of this Journal issue, every year, two Volumes, prepared with great labor and care, containing a large amount of valuable information, finely illustrated, in neat illuminated covers. These volumes should be in every household. They also contain very complete Almanacs, with calendar of work to be done each month, on the Farm, in the Garden, etc. One is the **"Agricultural Annual,"** and the other the **"Horticultural Annual,"**—entirely distinct in matter, illustrations, etc. Each volume contains **152** 12mo pages. They are of permanent value, and every one should have each year's issue. There are now Nos. **1, 2, 3,** and **4,** (for 1867, 1868, 1869, and 1870,) of each work.....To make these more widely known, and as a premium, also, the Publishers offer to send any one of these eight volumes, post-paid, to any person who, during the month of JUNE, forwards a subscriber for the current volume of the *American Agriculturist* (that is, for 1870), at the regular subscription price of $1.50. One copy of any volume of the Annuals desired, will be presented for *each* subscriber thus sent between June 1st and 30th. (Such names will not, of course, be counted in lists for the general premiums described, on page 165.)

HALF-A-YEAR Subscribers are now in order, to begin with July 1st, though it is always better for every one to get the back numbers and have the volume complete. Certain it is, that nowhere else, in no book, or elsewhere, can one get so many fine engravings, and so much varied information for the small sum of 75 cents as can be found in the first half of this volume of the *American Agriculturist*. Our pages are all electrotyped, and we can print off as many new copies of past numbers as are called for. ☞ *The next half of this volume shall in no wise be less valuable than the first half; but it will be just as much better as our very best efforts can possibly make it.*

Mr. Cameron's Horses.—There not being space enough on the first page to allow us to describe all the animals in the engraving, we give the remainder of the article here: *Glennevis*, the upper left-hand horse, was bred by Gen. Angestine in England in 1866, is of a rich, dark brown, with black points; over 15½ hands high, and growing rapidly; is perfectly sound, with excellent shoulders, great propelling powers, and very fine action. His pedigree is a very rich one. *Warminster*, at the lower right-hand side, was imported by Mr. C. in 1865. He is a dark bay on short legs; stands 15¾ hands; long and level; powerful quarters, back and loins; his get are very promising—certainly the finest-looking of the season, and some of them out of trotting mares show wonderful action, and are highly valued. His pedigree is rich in the favored strains of Eclipse, Herod, and Matchem, of which he combines no less than 35 strains. He is at Clifton this season, and the price for his services is $100 for thorough-breds, and $50 for common mares. *Rebecca*, in the upper right-hand corner, is a chestnut, foaled in 1853. She was got by imported Glencoe out of a sister to big Aleck, by Medoc. The fine chestnut colt at her side is by Leamington, and she is now in foal to Warminster. —We have not space to write of these noble horses as they deserve.—Thorough-bred blood mingles with that of every other race, ennobling and strengthening it. It is a mistake to suppose that "blood" is of no advantage to trotting stock. The contrary is true emphatically. A letter is before us from a rather noted horseman in Connecticut, in which the following occurs: "Warminster's colts are, without exception, the largest and best I ever saw in this country. Prices have already been offered for yearlings of four times the amount that three-year-olds from the same mares can be bought for. Most of these about here, though from mares not speedy, show fine trotting action." As a rule it will pay better to send any really good mare, not of unusual size, and not very small, to a thorough-bred, rather than to a common stallion.

"The Patrons of Husbandry."—"J. C. M.," and others.—We know nothing of this organization beyond a report of an address made in its favor before the N. Y. Farmers' Club. If this address was correctly reported and the person fairly represented the organization, we see very objectionable features in the plan. There are, however, some excellent men concerned in the movement, and those who think they can do good by an organization of this kind.

Strawberry Exhibition.—Messrs. B. K. Bliss & Son propose to inaugurate their new store, Nos. 23 Park Place and 20 Murray Street, by an Exhibition of Strawberries. Very liberal premiums are offered, and Charles Downing and other well-known horticulturists have consented to act as judges. The precise day of the exhibition will be announced in the daily papers. Premium lists may be obtained upon application to Messrs. Bliss. We have no doubt that amateurs as well as market growers will generally avail themselves of this opportunity to exhibit their productions.

Peach Culture by J. Alexander Fulton, Esq., Dover, Delaware: Published by Orange Judd & Co. The Delaware Peninsula is now the great center of successful peach culture; and this work gives in minute detail the course pursued by the growers of that favored region in establishing the orchards from which the northern markets are mainly supplied with peaches. The work covers the whole ground, from planting the seed to marketing the crop. Besides a full account of orchard cultivation, there are special chapters upon training, and growing the peach under glass, and a full descriptive catalogue of varieties; Pp. 190. Price $1.50, by mail.

A Horticultural School.—Miss Emma Marwedel has opened a school at Brentwood Station, L. I., for the purpose of giving instruction in horticulture to the youth of both sexes. Miss M. has had experience in the industrial schools of Germany, and has the countenance and support of many of our best citizens in her present undertaking. We are glad to learn that she has received an encouraging number of applications for admission. Our fashionable ladies' boarding-schools have been mainly devoted to teaching the arts of *husband-ry*. Horticulture is now to have a chance.

Advice about Investments.—It is impossible for us to advise one to make this or that purchase, to mortgage his farm for a certain purpose, or to give counsel in other matters, where a knowledge of the individual as well as his surroundings is necessary to the forming of a correct judgment. Many letters asking such advice must remain unanswered.

Let Poisons Alone.—The N. Y. Evening Mail has the following: "A few drops of cologne, belladonna, or aconite, taken on a lump of sugar two or three times a day, will, it is said, give exceeding brilliancy to the eyes. A word to the wise, etc."—The Mail is such a well-conducted paper that we are surprised that it should give publication to such dangerous stuff as the above. A physician would not give belladonna or aconite two or three times a day without closely watching it.

"Eating a Mandarin."—An Eastern correspondent of one of the papers wrote home of "eating a Mandarin" under the shade of palms. Like a lively chicken the Tribune pecked at, and like a solemn goose the Evening Post gabbled at, the poor correspondent. It never occurred to either of these papers who are constantly pluming themselves on their agriculture and horticulture, that there is a well-known variety of orange called the Mandarin; and it is just as common for people in an orange country to speak of eating a Mandarin, as it is for us to mention eating a Baldwin.

Typographical.—Our types behave themselves very well as a general thing, but they did make us talk nonsense last month, on page 178, in an article on Seeds. It reads, "Air, without the pressure of which germination cannot take place." Of course, it should have been *presence*, instead of pressure.

Harris on the Pig.—This work is having a rapid sale, and meets with favorable notices from the Agricultural press. The Country Gentleman, whose good judgment in such matters is conceded, has given it two notices of commendation. It is a work written by a farmer, for the use of farmers; and though devoted to the Pig, its teachings apply equally well to all kinds of improved live-stock. Sent by mail for $1.50.

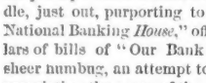
Horticultural Exhibition in Suffolk Co., N. Y.—The ladies of Suffolk Co., and the County Agricultural Society will hold a fair at Riverhead (L. I.) on the 22d and 23d inst. Premiums are offered for Fruits, Vegetables and Flowers, and a festival will be held on the evening of the 22d.

The Strawberry and its Culture; with a descriptive catalogue of all known varieties, by J. M. Merrick, Jr. Boston: Tilton & Co. One who writes upon strawberry culture at the present day will find but little to say that has not been said before. Mr. Merrick gives his account in a clear and pleasant style, and makes, as might be expected, a neat and useful handbook. The catalogue of varieties, which occupies 70 of the 128 pages of the work, shows a great amount of painstaking, and is more complete than any other.

Sundry Humbugs.—We have a *large* parcel of letters and circulars sent out by the "*fac simile*" money swindlers, which have already been shown up sufficiently. There must be a multitude of poor dupes in the country or these chaps would not continue the business so largely. One of the heaviest operators in this line calls himself "Dailey & Co., 73 Nassau St.," with several *aliases*. He prints his lithographic letters "April 14th, 26th," etc. He pretends to send to only one "keen, sagacious person" in each State. We have a large lot just alike, addressed to many persons in each of several States. He "positively refuses to receive letters by mail," (he can't get them from the P. O.) and will take nothing less than $25 for $500, as a first payment—for his worthless photographs. Among other new (spurious) names in this line, are Wm. A. Douglass, 718 Broadway; C. C. Alvord, 734 or 784 Broadway; Wm. Hammond & Co., 52 John St., and A. J. Hitchcock & Co., 148 Fulton St. (both precisely the same circulars as Dailey & Co., except the signature); James Arnold, Jr., St. Charles Hotel; A. H. Morrow, 730 Broadway, etc. In answer to the question asked in scores of letters, viz.: "Can't something be done to stop these swindlers?" we reply, 1st, that they do not have, or deal in, counterfeit money, or really offer it, though their dupes think they do; and 2d, while they do swindle multitudes out of money for naught, yet no one who has been wicked enough to *try* to buy counterfeit money and been cheated at it, is going to own up his own base efforts, and publish himself a counterfeiter by appearing as a complainant or witness against these rascals.....Here are more "Receivers" for Riverside enterprise, and a lot of fellows very anxious to sell watches for one-fifteenth part of their value—all of them humbugs; but green people keep sending on $5 to $15 each, expecting to get $100 to $200 watches. When people get anything, it is an apology for a watch, the more of which a man has the worse he is off; as they are neither good for use nor for sale, except as a swindle.....J. M. Blake, 694 Broadway, sends out red, blue, and gilt *pretended* certificates of prizes 46, 49, 77, in a "Spanish Lottery," saying that for $10 (5 per cent) he will forward a $200 watch; and A. L. Webb & Co., 206 Broadway, pretend to be acting for Blake—the whole thing is, of course, a down-right swindle. Wiggins, Bradford & Co., and Jas. Carter & Co., are nearly the same thing as Blake and Webb..... The so-called "Metropolitan Jewelers' Association," is a humbug. They (or he) don't send good American watches on $2 tickets, nor do any such thing. ....We know of several $5 Sewing Machines, so-called; but we have not seen one worth taking as a gift, much less one worth paying $5 for, or $15 for five of them..... R. S. Elerton, Fourth St., Williamsburg, though he pretends to, *don't* do any such thing as send, for $2.65, Gold chains worth $50, sets of ladies' jewelry worth $25, Patent

Gold Double-cased American Time-pieces, marked $50, and such like things. He offers lots of other "*things*." Better keep your $2.65, if you have any good use for it. ....To C. J. We answer no anonymous letters—though "Yes," will do in this case....."Oroide Watches" again—this time from "little Rhody." Let these alone unless you have money to throw away..... A man in Rensselaer Co., N. Y., offers a "Silver-plating recipe" for $10. We will give as good a one for $0. Dissolve Nitrate of silver with Cyanide of Potassium, and then study the art of using it well with a galvanic battery; and if you can then compete with those who make a regular business of silver plating with the requisite apparatus and machinery, you *may* make a little money.....Beware of *all* manufactured oils or illuminating fluids; buy *no* "rights" to make them. If you reject this advice, and choose to take the high-fallutin statements sent in circulars by various parties, go ahead and lose your money—but get your buildings fully insured against *all* risk before you touch these materials... Cancer Doctors! Don't read one of their circulars or letters, nor look at their pictures, nor let one come in speaking distance of you, or ten to one he will find a cancer, and half scare your life out of you, and all your money, especially the latter. There is not one of them we would give a moment's heed to, and we have given some attention to this class of advertising "doctors." Every sore, wen, or slight defect in the appearance of the skin even, is, with them, a "malignant cancer." One of these swindlers, a man of great reputation who had by his *own* account wrought wonderful cures by the hundred (he *was* over 70 years old) followed the writer for weeks, begging him to let him save his life—which he would do cheap (*only* $150.00) "considering his position," by cutting, burning, or plastering a little red spot on the side (not the *end*!) of the nasal organ. "It would surely soon eat into the face and get beyond remedy." We kicked the swindler away, and the red spot imperceptibly went away of itself. No "cancer doctor" ever cured a *real* cancer, which is a very rare disease; they do remove some troubles which would have gone away themselves, or have been better and far more safely removed by a regular surgeon or physician. Of course, in all cases a great cure of a great cancer is claimed by the swindler. "A Philadelphia chap is hunting up agents to send him patients, offering them '10 per cent'" of his fees. It is worth 10 per cent to even look at his awful, scaring pictures....."**$800** a year"—"**$900** a year"—"**$1,000** a year"—"**$1,500**"—"salary guaranteed"—"all expenses paid"—a "commission extra"—etc., etc., etc. Such advertisements are continually appearing. They are usually swindles. One man advertises for agents to sell teas, etc., by sample, and makes very plausible statements by circulars and letters. His great "coffee and spice mills" consist of a little room just big enough to send out circulars and "take in" the money he requires *in advance* for the samples! Of course the sender never gets that money again. The samples, *when* any *are* sent, are perhaps worth a dime all told!....P. S.—A new swindle, just out, purporting to come from the "Broadway National Banking *House*," offers two or three millions dollars of bills of "Our Bank" at half price. This is a sheer numbug, an attempt to steal people's money by appropriating the name of the old well-known and substantial Broadway National Bank.

Tobacco Smoke for killing Sheep Ticks.—Mr. Z. S. James of Burlington, N. J., writes, describing a simpler apparatus for *smoking ticks* than Mr. Gladden's, figured in the May number. He says: "Some twenty years ago, after examining the cumbrous and expensive apparatus for fumigating plants, sold by the florists, I took a round tin box,



had a cone inserted in the cover end, and the same reversed on the other—put the tobacco in the box, dropped in a live coal, put on the cover, slipped one end on the nozzle of a common bellows, and it worked perfectly. This is much simpler than Mr. Gladden's plan, can be used much easier, and applied to any part of the animal without trouble."

Chinese Primrose.—Some of the newer seedlings, both double and single, are very fine. Henry Foddy, Gardener to Thos. Prosser, Brooklyn, brought us one of great merit.

Pronunciation.—"J. F. S.," Weigela, (not *ia*) is pronounced *Wy-gee'-lah*, Deutzia, *Doot'-zee-ah*, Coccinia, means scarlet, and is pronounced *cock-sin'-e-ah*.

Rose Oil.—James F. We do not know this oil, and have no desire to. If a gas or vapor that will take fire arises from it at ordinary temperatures, let it alone severely.

Herbaceous Pæonies.—"J. F. S.," Ellwanger & Barry, Rochester, enumerate about one hundred kinds in their Catalogue.—We cannot comply with your request to describe them.

Seeds Do not Come Up.—"A. A. V. B." Your seeds of Magnolia, Grape, and Rose, are slow of germination, if not sown as soon as ripe, or kept in sand until ready to sow. Magnolia seed is especially liable to spoil if not thus kept. All you can do now is to wait and give them a chance to grow if they will.

"Canaille."—A lady in Kansas wishes some of our readers to tell her how to prepare Canaille, or wheat shorts, as food.

Grubs in Lawn.—Several ask what they shall do for the White Grub in lawns. The European White Grub, much like ours in habits, is a matter of much discussion among the agriculturists and horticulturists abroad, and we have read much upon the subject in hope of finding something that would be of use in contending against our grub. In cultivated lands they employ children to follow the plow and pick up the grubs.—We know of no treatment likely to succeed against those below the turf on the lawns. If any one has found a remedy we shall be glad to make it known. Destroying the parent, the May-bug, or May-beetle, will be a preventive.

Cider for Vinegar.—"B. H. S." asks the best place to keep a barrel of cider intended for vinegar. The warmest place that can be found, and allow the air free access to the liquid.

Cut Feed.—"J. J. P." asks: "Is cut feed, so called, better than dry hay uncut, and dry meal, separately for milch cows? Yes, and if cooked better yet.

Gum for Postage Stamps.—"J. K. F.," New Lisbon, O. Postage stamps are coated with a solution of *dextrine*, which is starch prepared by heat or acids, and is soluble in cold water. It is usually kept by druggists and dealers in photographic materials.

Bedding for Cattle.—"Subscriber."—Which is better for bedding for cattle, with reference to manure, sand, sawdust, or peat and dried earth? Dry peat or dried earth.

Cucumbers.—Fred. K., Brunswick, Mo., wishes to know a better way to preserve cucumbers than salting them, and then being at the trouble of soaking out the salt. We saw, a few years ago, at the Ohio State Fair, some cucumbers preserved in water containing a slight amount of *sulphurous* acid. It was claimed to be a success, and was patented. People having such things should advertise.

Bugs on Vines.—Mr. Zimmerman writes that a tomato plant set in the center of a hill of cucumbers, melons, etc., will effectually keep off striped bugs and other insects. The tomato is cut away as soon as the vines begin to blossom.

Insects on Cabbage Plants.—Mrs. N. W., Chebanse, Ill. We suppose you to refer to the black flea or fly, as it is called. Freely sprinkling with wood-ashes and air-slaked lime, is the best remedy we have tried. It is stated that if the seed be sown in boxes, elevated several feet above the surface of the ground, the insect cannot reach them.

Plant Named.—J. W. Prince, Franklin Co., Mass. *Nierembergia filicaulis*, a pretty green-house or bedding plant for which there is no common name.

Bark-louse.—The specimens sent by H. C. Steadman, Mifflinsburgh, Pa., is Harris' Bark-louse. That from J. L. Redmond, Carroll Co., Ohio, is the Oyster-shell Bark-louse. We have already published such remedies as have been suggested. The eggs which are under the scales, hatch this month; the young insects travel to the young growth of the tree and there fix themselves, and finally reach the condition of those in the specimens sent....C. Jewett, Niles, Mich., says that wet, unleached ashes applied to the limbs of a tree, he considers to be better than ley, as when wetted by the rains it makes fresh ley until washed off. He says "The remedy is a sure thing."

A Botanical Microscope.—Several have asked where they could procure a small microscope for examining flowers and insects. Many suppose that a very high power is needed for the purpose. It is only in a certain class of examinations that a strong magnifier is required. All that the student needs is a glass of moderate power so arranged that he is not obliged to hold it, but has both hands at liberty with which he can pick to pieces a small flower placed under the glass. These conditions have been met in a little instrument furnished by Ivison, Blakeman, Taylor & Co., New York, called the "Gray's Microscope," because it was made for the use of Dr. Gray's classes. A pocket magnifier is fixed upon a stand and is supplied with a stage to hold the object. The stand is ingeniously contrived to answer as a box to contain the parts. Price $2.

Vermin on Cows.—"E. M. M.," Mich. Your cow has lice, probably. One of our correspondents recommends Indian meal as a sure cure for them. It is not a cure, but it gives vigor to resist their influence. Feed better yet, use the card, and wash with carbolic soap. The feed will tell in the milk and butter, and you will more than get your money back in these products.

Apples for Northern Iowa.—D. W. Adams gives the following as his selection of varieties for Northern Iowa: "*Summer*—Red Astrachan, Sops of Wine, Duchess of Oldenburg....*Autumn*—Saxton, or Fall Stripe, St. Lawrence, Fameuse.....*Winter* — Plumb's Cider, Perry Russett, Blue Pearmain, Ben Davis, Rawle's Janet, Talman's Sweet."

"The Southern Agriculturist."—Agricultural papers multiply with great rapidity in the Southern States. The latest is the "Southern Agriculturist," a neat monthly of 32 pages, published by Thomas J. Key, at Louisville, Ky., at $2 per annum.

Paradise Apple Seed.—F. W. Watson, Tobique, New Brunswick. We do not find the seed in the catalogues. The nurserymen raise their stocks from stool layers, the same as they do the quince. We doubt if the use of the Paradise stock will make your trees any more hardy. For your climate we should try some of the improved Crab-Apples noticed last month, as well as the Russian varieties.

Pruning a Young Orchard.—"Subscriber," Rockville, Md., "fears to apply the knife" lest he should not observe the maxim "let well enough alone." If he has not a definite idea of what he wishes to prune for, we advise him to defer pruning, until after the severity of next winter has passed. In the mean time if young shoots are pushing, where branches are not wanted, remove them.

Fruit Preserving Powder.—Several have inquired concerning this preparation. It has been used by several of our associates with satisfactory results. The proprietor does not claim that this method is preferable to the best air-tight process; but he does claim that its cheapness and the ease with which it can be done commend it to those who wish to preserve fruits in any considerable quantities. The preparation we believe to be quite harmless, and that it will preserve the fruit we know from experience.

Currant Caterpillars.—Fred. Goldberg, Dakotah Co., Minn. Procure powdered white hellebore and dust it over the leaves of your currant and gooseberry bushes. A few applications will rid them of caterpillars.

Black Ants.—"Inquirer," Salem, N. J., wishes to know how to exterminate the large, black ant. He has "tried many things, but as yet, all have been ineffectual."—We once devoted a good share of our time to two ant-hills, using every remedy we could hear of. Somebody gave it up, and it was n't the ants. Mr. Rivers, of England, uses 4 oz. of quassia, and 1 gallon of water; boil for 10 minutes, and add 4 oz. soft soap. We have not tried it, but it comes from excellent authority.

Red Spider on Fuchsias.—"G. W. H.," Philadelphia, says: "Fill a barrel nearly full of water and slack in it about a quarter of a peck of lime and let it stand until perfectly clear. Hold the plants affected in the water (bottom up) for about five or ten minutes, then wash them with pure water."

Minnesota State Horticultural Society.—The following were elected officers at the meeting at St. Paul in Feb. last: J. S. Harris, President, La Crescent; C. P. Cook, Vice President, Garden City; H. Louweter, Recording Secretary, Red Wing; J. W. Harkness, Corresponding Secretary, Faribault; Wyman Elliot, Treasurer, Minneapolis. A correspondent who was at the meeting writes: "All were strong in the faith that fruit raising in Minnesota would be a success. Each year develops new seedlings of rare promise worthy of trial. It was stated that not less than 15,000 bushels of apples (Pyrus Malus) had been grown the past season in the State. Many new facts were brought out in the discussion with regard to the raising of the apple in Minnesota. Adjourned to meet at Minneapolis, July 4th next."

Hints on House-keeping Conveniences.

Saving labor, or what is equivalent, saving "steps," is an important point to be always kept in mind, in all plans for the arrangement of rooms, pantries, etc. A house-keeper writes us, that, from the suggestions thrown out in our articles on dwellings, she has been led to re-arrange the position of the sink, pump, table and pantries, in her kitchen and dining-room; and that by a simple arithmetical calculation she finds that during the last 12 years she has traveled 2,190 miles more than she will have to, during the next dozen years, with the new arrangements. It cost her about $50 to put things just where they ought to have been placed at first without any extra cost.

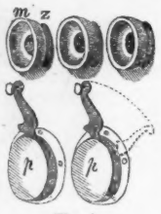


Fig. 1.

Bells.—These are very simple contrivances, easily provided at trifling cost, and they not only save steps but promote quietude. Very good bells are now sold at 20 to 25 cents each; a wire "carriage" and check spring cost 10 to 15 cents; a few cents' worth of No. 18 tinned wire, two or three triangles for changing the direction, costing 6 to 10 cents each, and a bell-pull costing anywhere from 25 cents for a slide, to a dollar or so for a japanned, bronzed, or plated crank with porcelain cap (*p*, **Fig. 1,**) are the requisites. Any mechanic, with common ingenuity, can hang one, though in a large house it is cheaper to employ a professional bell-hanger. The wires may run along the corners of a room, or behind the casing, or back of the lathing; but is far better when building a new house to use the zinc tubing prepared specially for the purpose, and costing only about 1½ cents per foot. This is fastened outside the lathing and covered over with the plaster, with the end bent outward where the bell is to be hung. Bell boxes (**Fig. 2,**) are attached to the end where the pull is to be placed, and this is covered with the mortar, except at the opening for the pull. In this tubing the wire runs smoothly and with little wear, and is easily put through after a house is completed, if mortar has been kept out by the insertion of a wooden plug in the open ends. The bell boxes are kept by hardware dealers and sold for 6 to 8 cents each.

Fig. 2.

Speaking-Tubes.—Two persons standing at each end of a simple tin pipe, one inch in diameter, 50 to 100 feet or more long, with several elbows in it, and carried through half a dozen rooms, can still converse quite readily in a low voice. Such tubes may be carried between any two rooms in a house, however distant, and save a world of steps, and calling through the halls. (See pages 88 in our March number, and 120 in April number). A mouth-piece for inserting in each end, is shown in fig. 1. This may be of common tin plate, like the mouth-piece of a tin horn, but with the opening the same size as the tubing, or more elaborate. The three shown in fig. 1, have a porcelain rim, *m*, and a zinc shoulder, *z*. These retail at 30 to 40 cents each. Ready-made tin speaking-tube in 5 feet lengths, is retailed in the hardware stores for 4 cents a foot, and the elbows at 3 to 4 cents each. Fifty feet of tubing with two mouth-pieces, and staple hooks for putting up the tubing, will cost only $2½ to $3, and it can be put up by any expert carpenter. It is usually fastened firmly along the studding before lathing. It can be carried through any timbers in an auger-hole. An invalid unable to move upon a bed may have a flexible rubber tube extend from the tin pipe in the wall to the bed, with the mouth-piece in this, and thus be able to communicate with persons working in a distant room. Were we constructing a new house for ourselves, we should be tempted to run a speaking-tube from each to every other room. As they never wear out or need repairs, the annual interest on the cost of a tube 50 feet long would scarcely exceed 25 cents.

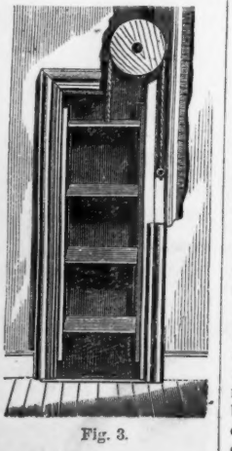


Fig. 3.

A Dumb-Waiter, is a great labor-saver, especially where the kitchen and dining-room are not on the same floor. It is simply a cupboard, or shelves, suspended on a cord passing over a pulley with a weight attached.

Fig. 4.

Fig. 3 shows a good form. Here the slide is suspended in the middle over a large wooden pully. It runs much better than the old-fashioned one with weights upon two sides. The weight is a piece of broad, flat cast-iron, running down upon one side. As the waiter does not need to rise more than 5 feet above the floor, there is room over it for the large pulley, or wooden wheel. A dumb-waiter may rise through the floor, its top being carpeted and forming part of the floor. In this case, two weights to slide down on two sides, are required, with the cords over small pulleys in the casing, and attached to the slide near the bottom.

Fig. 5.

Ventilators should be provided in every room of every house. We usually put in two, one (**Fig. 5,**) just over the baseboard; and another, (**Fig. 4,**) near the ceiling. The lower one is opened and closed by turning the ratchet-wheel, and the upper one by means of cords hanging from the two opposite sides. Where a cold room is being heated the upper ventilator is closed; the warm air rises to the ceiling and forces the cold air out through the lower ventilator. When the air becomes rarefied and impure, the upper ventilator will carry off that portion nearest the ceiling. Round, 5-inch ventilators, black or porcelain enameled, cost about $1.10 each, and the rectangular ones, 4×6 inches, cost about $1.60 each. An opening should of course be carried up through the wall from each ventilator or pair of them in one room, to the attic or to some point giving free exit to the air. Where a beam is in the way, it can be pierced with several small auger-holes, in sufficient number to allow free passage of the air. This can be done so as not to weaken the beam.

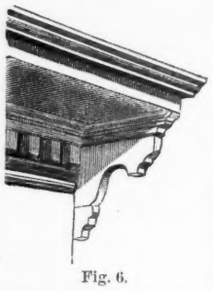


Fig. 6.

Fig. 7.

Cornice Brackets.—Three pieces are shown, copied from the houses described in March and April, which will serve as patterns. **Fig 6** is a portion of the cornice, and dentils under the eaves. **Fig. 7** is a neat form of a bracket for the head of a bay-window, or a small portico. **Fig. 8** is a tasteful pattern for brackets to be placed under and supporting a bay-window.

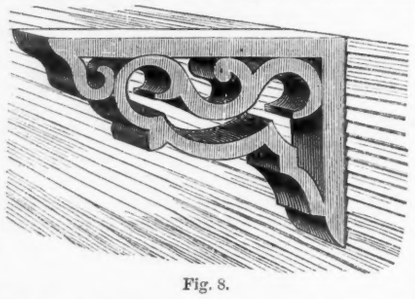


Fig. 8.

Bee Notes.—*By M. Quinby.*

The Apiary in June.—Put boxes on early in this month, there will be no harm if they are on a few days before they are really needed. They should have small pieces of comb stuck in the top. The whiter and cleaner the comb for this purpose, the better. As fast as boxes are filled, replace them with empty ones. They must always be shaded. Progressive bee-keepers should be so advanced as not to wish or allow their bees to swarm at all in the usual way; but to such as still remain where they were ten years ago, I say now is the time to look for swarms. Small apiaries swarm more than large ones in proportion to their numbers. Putting on boxes will not often interfere with it, and if in any case it should, the box honey might compensate for the delay of the swarm. You cannot get many swarms and much box honey from the same hive. Weak hives should be examined. If queenless, supply a laying queen; if diseased, drive out the bees so that they may begin again; or put them in a hive with combs kept over from last year and frozen during the winter. In thus transferring bees from a diseased hive, keep them 48 hours in an empty box, to dispose of the honey they may take with them, supposing they are filled, before putting them in clean, pure combs. Bees should never be driven out in less than 10 days after the first swarm issues, or before the young queen hatches. Twenty days would be better still. When after-swarms issue nearly at the same time, two together will make a good swarm. Such are not always quiet. When several hives containing after-swarms made up in this way, are standing in a yard, they will frequently begin to unite in a way which a careless bee-keeper would not be likely to notice. Ten or a dozen bees at a time will leave some one hive for another, and this process repeated, sometimes produces surprising changes; and where you thought you had half a dozen good swarms you suddenly find you have two or three monsters, and the rest of the hives are empty. Where bees are entering a hive in this way, a few at a time, they will generally stop a short time around the entrance and set up a buzzing by which the careful observer may detect them. If this is discovered while the hive from which the bees are coming still contains enough for a fair colony, stop the entrance with wire-cloth, and the bottom with wire-cloth or something that will admit the air; for bees are very easily smothered this warm weather; turn it on its side and put in a cool cellar for twenty-four hours. This will generally quiet them. If they continue uneasy after they are set out, it may be taken as an indication that they have no queen, and one should be given them. Such swarms are liable to lose their queens when they go to work. If the first combs they build are for drones, it proves that the queen is lost. Under such circumstances they will accept a queen at once. Those who wish to control swarming are referred to the *American Agriculturist* for June, 1869.

The Best Beehive.—Several letters have recently been received inquiring for some non-patented movable comb-hive suited to the needs of progressive bee-keepers. Although I shall not give a detailed description, measurement, etc., I will endeavor to present a general idea of the hive I have recently adopted, and am now using. I invented it to meet my own necessities, and as I did not expect to make anything by its sale or general introduction, I have not taken any special pains to make its merits known. However, I am willing to give all a chance to become acquainted with it. I consider it free from any patent or claims of infringement. The prevailing idea of the hive, as I use it, is to make it a non-swarmer, and secure the largest amount of surplus honey in the best shape for market. The first of these considerations has long occupied my attention; for until swarming is fully controlled, results must be more or less uncertain. This point has been attained by the use of a device, called a queen-yard, made as follows: Nail together strips of boards to make a box 18 or 20 inches square, by 3 or 4 inches deep, with a floor of thin boards, except a strip 4 inches wide, which should be of wire-cloth, for sifting out dirt, and for ventilation. Fasten strips of tin 2 inches wide, around the inside at the top, parallel to the floor; and make an opening in the side next to the wire-cloth, in the floor, corresponding to the entrance of the hive. Paint the upper side of the tin some light color. In swarming-time place this yard in front of the hive. Previously examine the hive, and clip the wing of the queen. When a swarm is disposed to issue, all the bees are obliged to pass through this yard, and the queen, being unable to fly, or crawl over the projecting tins, will return to the hive where the bees will soon follow her. To prevent their raising a young queen which can fly, the hive must be opened, and all queen cells cut out once a week, unless it is desirable to supersede the old queen, in which case *one* cell may be left; and after she has hatched and commenced laying, which will be in about ten days, find her and clip her wing as above directed. The old queen should be removed just before the young one hatches. The inside of the hive is simple, consisting of eight movable frames, supported by a device which clears them from any patent. The frames are 11×18 inches, inside measurement, and are held in place by a piece of hoop-iron fastened on the outside of one of the end pieces, near the bottom, and bent at a right angle to project under the end of the frame about ¼ inch, to form a sort of hook. There should be space enough between the hook and end of frame, to allow it to slip over a piece of hoop-iron, fastened across the bottom board of the hive, which has a slight channel cut under it to give requisite room. One end of each frame being thus secured, they remain perpendicular, and are kept at the right distance from each other—¼ inch—by nails partially driven in the sides of the frames. There are various other items in the construction, such as ventilators, etc., which I cannot take room to describe. At the sides and top of these frames, there is space enough to place surplus boxes of over 100 lbs. capacity, holding from 2½ to 4 lbs. each. Top boxes are placed directly on the frames; side boxes with the partially open ends, against the main combs. If the honey is designed for home consumption, extra frames may be used

instead of boxes. A large box, which is joined at the corners with hooks, encloses the whole, and can be readily opened at any time. The space devoted to boxes in summer can be filled with dry hay or straw, and the hives remain safely on the summer stand during winter. Those who prefer to increase their colonies by natural or artificial swarming, to securing large amounts of surplus honey, can use these frames to advantage by omitting the extra space designed for boxes, and enclosing with a box just large enough to accommodate the frames, leaving sufficient room to prevent the bees from waxing the outside combs fast to the hive.

Bees and Fruit.—J. M. Brooks, Columbus, Ind., asks "If bees can be kept on a fruit farm profitably, or will they sting and injure the grapes?"—I have raised more or less fruit, and especially grapes, during all my years of bee-keeping, and do not find the two incompatible. On the contrary, I have always maintained that they could be very advantageously combined, for several reasons, which I have not space to enumerate at present. I have never found bees destructive to grapes, although they are sometimes found upon them, particularly in such seasons as the last, when honey was not to be found, and the bees were actually starving.

Grape Queries.—J. C. Bayler, Ky. We cannot say what buds you should rub off from your vine without knowing in what manner you wish to train it. Recollect that each bud will produce a shoot which in autumn will ripen into a cane, and rub out accordingly ....The Eumelan and Hartford Prolific are among the earliest sorts.....The vine which blossoms but does not bear, is probably a seedling with undeveloped pistils. Such often occur, especially among wild grapes. The best thing to do with it is to graft it over.

Grinding Scythes, etc.—We are approaching the time when the grindstone will be in pretty constant use. A good grindstone should have both a crank and a treadle. If the stone be well hung and oiled, light work can all be done by one man; but for heavier work like scythe and ax grinding, the holder needs some one to turn. We have often experienced the difficulty which has annoyed our correspondent, Geo. Kuntz, of Peoria Co., Ill.; namely, of the person turning, being in

the way of the scythe or set of mowing machine knives. Mr. Kuntz has the stone turned by a boy moving a rod attached by a slot and pin to the treadle-crank. Putting the suggestion to a practical test, the writer was much pleased with the convenience and ease with which the stone was turned, and we illustrate it in the accompanying engraving. The hand crank should be taken off and the stone run at a higher speed than usual. A medium sized stone is best, and our correspondent says that he finds very small stones run in this way, serviceable. At any rate, with this appliance there is no raising up and down of the whole body, but the work is done at the best advantage by the arms;—besides there is no danger of cutting the hands or head as in turning by the crank.

Cooking Fodder.—"L. F.," Ogle Co., Ill., asks: 1. How much more fuel does it take to cook fodder for cattle with steam than the common way of cooking? 2. What machinery is needed to do it carefully? 3. Wont it do as well to shell the corn before cooking as to cook it in the ear?....(1.) Practically not much. Theoretically the amount of water in the boiler has to be heated to the boiling point, and this much heat is wasted. But this is a small affair when compared with the extra labor required in boiling fodder. The great advantage of steam is, that it is so perfectly manageable....(2.) A cutting machine for hay, etc., a trough in which to wet the hay and mix it with bran or meal, a box or chamber in which to confine it while being steamed, and some sort of a steam-boiler which shall be safe to generate steam in.... (3.) The labor of shelling would be lost, and probably a longer time would be required before complete cooking would be effected. The best way is to put ears of corn into a barrel, put in water enough to cover them, and then introduce the steam through a pipe reaching to the bottom of the barrel, and fire up until the water boils. Then withdraw the pipe, cover the barrel, and leave it from 6 to 12 hours before using.

Steaming Corn for Pigs.—George A. True, of Ill., fed new corn from Sept. 26th to Dec. 1st. He fed 70 bushels per week, which made an average of 724 lbs. per week. He asks what he can gain by steaming. We know of no experiments among our own acquaintance that furnish a definite answer to this question. In fact so much would depend upon the condition of the corn that no single experiment would have much value. The softer the corn, the less the relative benefit from cooking. We have seen reliable statements in agricultural papers to the effect that twice as much pork was made by a bushel of corn when ground and cooked, as when fed whole. This would probably be too much benefit to hope for, under any ordinary circumstances. We have practised cooking for hogs during the past winter, and are satisfied that it is profitable; but have made no accurate weighings to determine the exact result.

Butter Packing — Correction.—On page 219, in the paragraph on Packing and Marketing, after "Firkin, Tub, or Pail, as the case may be"—read (which should have been previously soaked in brine.)

How Many Beans to Sow to the Acre.—There are four kinds of field beans; viz., The Pea bean, of which 4,400 are contained in a quart; the Blue-pod bean, of which 2,700 are in a quart; the White Marrow, of which 1,300 make a quart, and the White Kidney, 1,200 of which make a quart. If the hills are 2 feet apart each way and 6 to 8 beans are put in a hill, it will require 18 quarts of the Pea beans; 1 bushel of Blue-pods; 7 pecks of the White Marrows, and 2 bushels of White Kidneys.

The Grain Crop.—The Report of the Department of Agriculture for May, gives very full reports of the condition of winter grain. The results are summed up as follows: "They picture a small and slow growth, thinned in places by winter-killing, weak and unthrifty in spots from loss of vitality by long exposure under ice or to freezing winds; but, with these exceptions, vigorous, of good color, and ready to start, under the influence of a genial spring, into luxuriant and healthful growth. These blemishes are neither general nor very marked in localities where they appear, with occasional exceptions of severe freezing. While the appearance of wheat is by no means as promising as it was last year, the difference is due, more to the backwardness of growth, caused by late planting followed by an early winter, which allowed of little more than germination before cold weather set in, than to injuries from freezing. The mild weather and light snows of the winter-wheat region were accompanied with few sudden changes in the earlier winter months; while the colder and rougher weather of later winter was attended with heavier snows, which furnished valuable protection at a critical season. The regular returns were prepared about the first of April. The tenor of later information gives assurance of a general and rapid amelioration, which may yet result, the season favoring, in a fine crop of winter wheat."

Maple Sugar.—The articles in February and March have called out several valuable suggestions, for which we thank the writers. They came too late to be of use this season, but like other good things, they will keep. In April, Mr. Chamberlain, the author of the articles referred to, convinces us that he practises what he teaches, by sending specimens of his sugar and syrup—the last remarkably fine.

The First Book of Botany, designed to cultivate the Observing Power of Children, by Eliza A. Youmans. New York: D. Appleton & Co. Miss Youmans has evidently given much thought to mental growth in children. Convinced that there was nothing in the ordinary circle of school studies that cultivated the powers of observation, she, in seeking for some study that should teach a child to use its eyes and record its observations, fixed upon botany as best suited to her purpose. In the present work she takes the different parts of a plant, and teaches the child their names and the different shapes the parts assume. It only claims to present the merest rudiments—to show the difference between leaf, stem, etc., and to teach the child to state what a part is, and to describe its shape. We must confess to a hearty sympathy with the objects of this work. How far it will accomplish the author's aims, can only be told by actual trial. The subject as presented by Miss Youmans is worthy the consideration of teachers and all who have the education of young children. The obstacles to the introduction of any new studies into our schools do not lay so much with those who are taught, as with those who teach; and we fear that the average "school marm" will not qualify herself to teach even these simple lessons.

Raising Ducks.—Mrs. "S. A. P.," who had very poor luck with her ducks last year, asks how to raise them. We have had good success with the following method: The eggs are hatched under hens; when they come out, we confine them with the hen for

several days by placing boards to make a little yard around the hen-coop, as in the engraving. The coop is set on a board so that the hen cannot scratch, and water and food are placed where she can reach them. The ducks must always be called when fed; and at first allowed to get a little hungry before feeding, food should not be left before them. They will soon learn the call of the hen. When they do so and run quickly to her, and when they run to the coop for safety and when hungry, the boards are pulled up and the ducks let run. They have to be watched at first and driven back, when they wander far. Soon they may be trusted anywhere but in a brook or pond. If they get wet while in the down, and before two or three weeks old, they are in danger of being chilled. A heavy thunder shower often proves fatal from this cause, if they are caught by it far from home. After they are several weeks old they are in danger of being washed away and lost by the sudden rising of a brook or stream in which they may be allowed to forage. They need water only to drink, and to wash in, and a shallow trough or tub will hold enough. If rapid growth and large size are desired, ducks must be fed very frequently—as often as they will come and call for feed, is our rule—say once in three hours, and must have a range.

Rock-Work.—"S.," Holly, N. J. Rock-work is best made of large stones laid up so as to represent a natural out-cropping of the rock. In arranging the stones, irregular spaces or "pockets" must be left to hold earth. Another way is to build up a structure of medium sized, irregular stones, using cement (water lime mortar) to hold them together; and afterwards paint the whole over with a wash of water lime to give it a uniform color.

Who Buys an American Watch?—Half a million watches have been made by the American Watch Co., at Waltham—No. 500,000 was finished a few weeks since.

Cranberry Culture.—A work upon the culture of the Cranberry, which should give the present approved methods of culture in a practical manner, has for a long time been needed. The publishers of the *American Agriculturist* are glad to announce a work of this kind, which is now in press and will shortly be ready. The author is J. J. White, Juliustown, N. J., a successful grower of cranberries on a large scale. There have been so many loose statements with regard to cranberry growing, and so much rash speculation in the business, that a well considered work like this will be timely.

The American Entomologist has changed its title to that of "Entomologist and Botanist." The botanical editor is Dr. George Vasey of Illinois, long known as one of the leading botanists of the West. Mr. Riley will continue to look after the "bugs." A popular botanical journal has long been wanted, and we shall be glad if the present one fill the gap. R. P. Shedley & Co., St. Louis Mo., Publishers, $2 per annum.

Salt and Lime Mixture.—Thos. Ford, Miss. Experiments indicate that there is a gain in mixing these substances, that is, in slaking quicklime with brine. The chemical reaction which takes place is not so definite as might be supposed. Lime is oxygen and calcium; salt is chlorine and sodium; an interchange of bases would convert lime and salt into chloride of calcium and soda. This action probably takes place, but to a very limited extent, depending upon the heat of the mass. The value of the article is probably chiefly due to the intimate mixture effected.

Chocolate Corn.—"J. A. S."—this is a variety of *Sorghum vulgare*, and is also called Durra corn and Indian Millet. We do not find it in the catalogues.

Farm Windmills.—C. M. Colby, of Minnesota, asks concerning windmills, whether there is a patent "on a wind-power, consisting of a vertical *flutter* wheel enclosed in movable blinds, which are adjusted by a governor, to run even." He also asks the expense of a windmill for watering stock from a well ten feet deep.—We know of two instances in which the *flutter* wheel described is used, but without a governor for regulating the blinds. These are moved by hand. They require a good deal of attention, and have not impressed us favorably. The application of a governor to these blinds seems impracticable. A windmill of much better construction, perfectly self-regulating, and with power enough for a ten ft. well, could be erected for about $100 including the cost of pump.

Spring Water for Trout Ponds.—P. R. Wagenseller, of Pa., has a spring so low that he can get no fall for a hydraulic ram. He wishes to convey its water to a trout pond about 30 rods distant and 12 feet above it. He asks: "Is there any contrivance other than a hydraulic ram, (which I cannot use for want of a sufficient fall), or the windmill (which might fail in calm weather) by which I could secure the use of my spring water to my trout pond? Is there any way by which the spring can be raised above its natural level so as to get fall for a ram?"—Water cannot be raised without power. Without a fall the ram is of course out of the question; and it is seldom possible to raise a spring above its natural level. As soon as it accumulates a little head, it will force an outlet at some fresh point, often beyond the reach of masonry. Under the circumstances described, there seems to be nothing so promising as a good windmill. By giving a little extra size so that the pump may be worked during light winds, there will hardly ever be 24 hours together when the pump will not work.

Horse Papers for Farmers.—No. 5.

Lest it be thought that I attach too much consequence to purity of blood in horse breeding, I desire to give the reason for my belief that it is not the only good thing, but much the best thing to be sought after.

What we know is that the blood-horse is a descendant, with perhaps a slight admixture from other sources, of the Oriental horse, whether Syrian, Barb, Turk or Arab. It is claimed that the blood-horse, otherwise called the "thoroughbred" horse, is even better than his Oriental ancestor, and in point of speed he undoubtedly is so. He is also of better size and better adapted to our uses. In gaining these advantages, however, he has lost much of the beauty and some of the wonderful endurance of the Eastern horse.

General Daumas, in his report of the horses of the Sahara, which was published with the approval of the French Minister of War, gives the result of long and careful investigations, carried on in Algeria under the most favorable circumstances. His account of the feats of endurance of the Arab horse would be incredible, were they not proven by most reliable evidence. He says that it is not rare, in time of war, for horses, under the saddle, to make from 150 to 180 miles in twenty-four hours. A tribe, learning that its enemies meditate a raid upon it, sends out scouts, mounted on the best mares, carrying but one ration of barley for the evening feed. They sometimes extend the scout from 75 to 90 miles away. If their observations lead them to fear an immediate attack, they return as rapidly as possible, but if there seems to be no danger, they return more slowly but still arrive at their tents before the evening prayer, after having made sometimes from 150 to 180 miles in 24 hours, (50 to 60 leagues). If there is a battle the next day, these same horses are able to take part in it. He cites an instance in which the favorite mare of an Arab, which had been selected by the tribe to which he belonged to be given to the Sultan as the price of peace, being ridden by the Arab's son 80 leagues (240 miles) within 24 hours, during which time it drank but once and ate nothing but the leaves of a date palm. General Daumas says that this young man swore to him "by the head of the Prophet" that he could have slept the next night at Gardaya, 45 leagues (135 miles) further on, if his life had been in peril.

These are but two of many instances within Gen. Daumas' own knowledge, of wonderful feats of speed and endurance. The Arabs of the Sahara thus sum up the perfections of a horse; "He ought to carry a full grown man, his arms and change of clothing, food for both, a blanket for bad weather, carry a corpse in case of need, and run the whole day without thinking of water or food." Of course we shall never see and we shall never have occasion for such feats of endurance as are here indicated; but all that is most valuable in our own horses, is inherited from the race to which such feats are possible, and in proportion as we are able to infuse this blood into our own stock, shall we add to the worth of our horses.

For the drawing of heavy loads and for farm work, we need more weight of body than the Arab or the average thorough-bred possesses; but the extent to which size may be sacrificed for the sake of blood is greater than would be at first supposed, for blood brings not only intelligence, energy and endurance, but actual physical strength. The bones of a blood-horse are much stronger and more compact than are those of a cold-blooded cart-horse. The one is comparatively like chalk, the other like ivory; and the fibre of the muscles as well as the strength of the tendons, shows an equal superiority in the case of the blood-horse. When, therefore, we combine the vigor and *vim* of the high-bred horse with his greater rapidity of motion, even in walking, we shall see that a moderate sized horse, requiring much less food for his support, will actually accomplish more work in a day than the heavier but more sluggish cart-horse.

As Herbert has expressed it in his Hints to Horse-keepers,—"Now as to what constitutes value or excellence in all horses.—It is indisputably, quickness of working, power to move or carry weight, and ability to endure for a length of time; to travel for a distance with the least decrease of pace; to come again to work day after day, week after week, and year after year, with undiminished vigor.

"The horse which can plow an acre while another is plowing half an acre, or that which can carry a load of passengers ten miles while another is going five, independent of all considerations of amusement, taste, or what is generally called fancy, is absolutely worth twice as much as the other. It is not only not true, that speed alone is the only good thing desirable from blood, but something very nearly the reverse is true. It is very nearly the *least* good thing. That which the blood-horse does possess, is a degree of strength in his bones, sinews, and frame at large, utterly out of proportion to the size or apparent strength of that frame. The texture, the form and the symmetry of the bones,—all, in the same bulk and volume, possess double or nearer fourfold the elements of resistance and endurance in the blood-horse that they do in the cold-blooded cart-horse. The difference in the form and texture of the sinews, of the muscles, and in the inferior tendency to form flabby, useless flesh, is still more in favor of the blood-horse. Beyond this, the internal anatomical construction of his respiratory organs, of his arterial and venous system, of his nervous system, in a word, of his constitution generally,—is calculated to give him what he possesses, greater vital power, greater recuperatory power, greater physical power, in proportion to his bulk and weight, than any other known animal,—added to greater quickness of movement and to greater courage, greater endurance of labor, hardship, suffering,—in a word, greater (what is called vulgarly) game, or pluck, than will be found in any other of the horse family."

As I write this, I call to mind a horse that I owned during the war. He was very nearly if not quite, thorough-bred. He was raised in Tennessee and had been used as a race-horse. I rode him almost constantly through a severe cavalry campaign that lasted for more than a year; and during the whole time, he never flinched from any duty, never faltered under the influence of bad weather and scanty forage, and was always a cheerful and willing friend and servant. One Monday morning I mounted him at half-past four, and set out on the march. At half-past eight we struck the pickets of Forrest's cavalry and spent the next two hours in beating the bush and skirmishing. From half-past ten until half-past twelve, we were engaged in a sharp fight that required me to keep in active motion over the field. From this time until half-past four, being nearly out of ammunition, we were kept in scouting duty on the flanks. At this time, our army being defeated and in retreat, we had to hold the rear until nearly dusk and then go to the front to open a way for the infantry. The retreat was rapid and unintermitted until six o'clock on Tuesday morning when we had passed a dangerous fork of the road. Here we halted for half an hour, during which time my horse was unsaddled and allowed to browse among the weeds of a barren stubble field. After this short rest, we mounted again and re-commenced the retreat, which was continued during the day without other intermission than was afforded by some active skirmishing in our rear. During the day I hardly dismounted for five minutes at a time until night-fall, when we halted for less than half an hour for consultation. Mounting again, we rode the whole night through, and until half-past ten on Wednesday morning, when we reached the lines of our main army. My horse had been on duty fifty-four hours, carrying a weight, (including saddle and arms), of not less than 200 lbs. During the whole time he was not more than thrice watered and was almost absolutely without food. Yet he came whinnying into camp, not as fresh as when he started, but by no means in an exhausted condition. In a case of life and death, I believe he could have gone another day. I had in my command over two thousand horses fit for duty. Of these hardly another one stood the work as well as mine did, and I attribute his superior condition solely to the fact that he was much the best bred horse of the brigade.

Let not this narration be considered out of place here; for while no farmer is called upon to ride two days and a quarter without intermission, there is not one who would not appreciate the advantage of having a horse that *would* thus carry him if necessary. If it had been a case of plowing instead of fighting, or of hauling manure away from town instead of carrying a whipped cavalry man away from the enemy, I am confident that my Tennessee horse would have shown the same superiority over the low-bred animals of the country, that he did under the circumstances described; and I leave his example to reinforce all that I have said in favor of breeding to thorough-bred sires. My future papers will be devoted to other branches of the subject; but I trust that my readers will continue to realize, that the very keystone of all

good horse breeding lies in the resort to the highest bred sire whose services can be obtained.

Ogden Farm Papers—No. 6.

The season for soiling has now arrived. Those who have intended to make it a sole reliance for their summer feeding, have prepared for it before this; but there is still time to put in sowed corn to help out the pastures during the drier weather of August and September. No time, however, must be lost. By the middle of this month, at the latest, the seed should be in the ground. It seems to me that it is impossible to manage an American stock farm advantageously without adopting some such expedient.

From the middle of May until the middle of July, our good pastures are luxuriant, and are capable of supporting a much larger stock than they can carry through the July and August drought. As a consequence, we are unable to consume all the provender that is available in June, because this would require us to keep more animals than could be fed in August. Or, if we do stock our pastures to the utmost of their June capacity, our animals will be half starved during the drought.

Much the simplest way to regulate the question of supply and demand, is to depend entirely on soiling. In this case, we are sure that we shall always have enough, and the surplus,—that which the cattle do not consume,—instead of being scattered in irregular patches over the pasture, much of it overgrown, and mixed with weeds, is in a condition to be easily mowed, cured, and stored for winter use. It is not to be supposed, however, that in a country like this, any very considerable proportion of its farmers will be able to command sufficient labor for a complete system of soiling; and as we have to take the world as we find it, the most valuable advice that can be given to average American farmers, would be to lay down the paper at once, and set immediately to work to prepare, for sowed corn, enough land to allow a quarter of an acre for each head of full grown stock on the farm.

By and by, when the hill-sides become browned with the scorching summer sun, and the withered grass fails to furnish the necessary food, then the corn, three or four feet high and covering the ground with a succulent mass of vegetation, will give the animals such a bountiful supply every morning and evening, as will carry them back to the condition of early June. If the pastures are suffering more than usual, such an amount of fodder as this, would enable us to keep the stock entirely off until the early fall rains bring them to a better condition.

I am perhaps not quite right in saying that this is the best advice to be given. It is more properly the advice which it will be the easiest to get followed. What really ought to be done in the case of most farms, is to sell off or to turn out to woodland the poorer half of the farm, concentrating the whole amount of labor, capital, and manure on the smaller area. There is hardly a large town in the country near which some thrifty gardener is not bringing up a family and growing rich from the proceeds of a small garden. Any ten acres of good land may, without much straining, be made to produce the summer and winter food of fifteen cows. What we want is a more resolute concentration of our efforts on smaller areas. I have in my mind a farm of 200 acres on which 30 head of stock are kept, and from which 50 tons of hay are annually sold. From what I know of the land, I feel confident that, if 150 acres were sold, outright, and the money thus obtained all expended in the improvement of the remaining 50, it could be made, within five years, to carry 50 head of stock and to sell an equal value of roots or grain. What we want is *High Farming;* not $20,000 barns, fancy cattle, and fancy management, but rich food and plenty of it; copious manure heaps protected from the weather; frequent and thorough cultivation; and the crowding of each crop to the highest point that it is capable of. When I see a man trying to make five loads of manure cover an acre of land, I always wish that I could make him, just once, concentrate it upon an eighth of an acre. Up to a certain point (and it is a point that we very seldom attain), it is the manure that makes the crop. On ordinary land, a ton of manure will produce as good a result on four rods, as it would on half an acre. To get this result we, in one case, plow, sow, cultivate, and harvest, twenty times as much land as in the other, and it costs twenty times as much to do it. The more we can concentrate our production within small areas, that is, the less we spread ourselves out thin over big farms, the more *profit* we shall get for our own work, our supervision, and our capital.

Very often visitors to Ogden Farm, when they see its narrow boundaries, point to the uncultivated land adjoining it and say: "It is a pity you can't buy 100 or 200 acres of that land and bring your farm up to a good size." I usually tell them that that is precisely what I wish to avoid. Before I get through, I hope to treble the quantity of the land; but I hope to do it by fishing out the next two farms that lie immediately under this one. If I can make the soil three times as deep or three times as rich or by any means three times as productive as it now is, I shall have virtually added 120 acres to the farm; and I shall have the further advantage that the new land will be no farther from the barn, than what I now cultivate, and that one plowing will answer for all three tracts.

The great agent in this improvement will be the soiling system, which I have now tried sufficiently long to prove its efficiency. It is a system on which I have no patent, which was invented long before the improvement of Ogden Farm was thought of, and which is equally open to every farmer who chooses to "haul in his horns" and raise his present crops from one-quarter his present area. The objection that a large amount of labor is required, has, of course, a good deal of weight, but not so much as is supposed. Any man who will keep watch for a week, even in summer time, over the blacksmith's shop, the grocery store, and the village, will see enough time idled away by the farmers themselves, to suffice for the soiling of all the live-stock in the township. And this is another point involved in the question of High Farming; what this requires is no more a larger number of men than the full industrial employment of every man's time. Gossipping, pottering, and sheer idleness occupy, on an average, at least a whole month out of each year of every farmer's life. And a month's time, well put in, from sun to sun, will accomplish an amount of work that would surprise even the most industrious. Many a man dawdles away, on an average, two or three hours a day, poking along over the road at a jog trot to town to sell an amount of produce that is actually not worth the time of himself and his horse. Another requirement of High Farming and especially of soiling, is *system.* Plans must be made beforehand; tools must be repaired in bad weather; and every moment of good working time must be made to tell to the utmost. It would be enough to make any ordinary farmer rich, if he would employ, in profitable and well planned work, the time that he now spends in hunting for mislaid tools; getting hay rakes repaired during the haying season; loafing along the road and spoiling two or three half-days every week in going to town on trifling errands.

I am aware that this is not exactly the sort of compliment that American farmers are in the habit of receiving from Agricultural writers, but I happen to be a farmer myself; and I live in a community of farmers. I preach better than I practice, and I am not innocent of the faults that I have portrayed; but I have the grace to be ashamed of myself, and find ample justification in my own habits and in those of most of my neighbors for the foregoing remarks. Most of us fool away time enough to make us much better farmers than we are.

I confess that I am somewhat perplexed on the subject of plowing for corn. I have always been an advocate for deep plowing under all circumstances, that is, as deep as the character of the soil will allow; but I am satisfied that deep plowing was one of the causes of the failure of my corn crop last year. This spring, I have laid out for an experiment in the other direction. I shall plow my corn-land, as nearly as possible, four inches deep, only following in the furrow with a subsoil-plow so as to get the advantage of deep rooting, without removing the richer soil and the manure too far from the surface. I propose to plow with Collins' cast-steel plows; one followed by the ordinary subsoil-plow, and the other having a subsoil attachment made with it. It is claimed that three horses draw this combined implement, when four would be required for two implements doing the same work. Even if four horses are required for it also, I shall at least save the labor of one man; and as any other field plow has the Volkman guide, little Hinderck can manage that team, and the plow, which has no handles, will take care of itself.

I had made up my mind, in consequence of the great amount of hand labor required in weeding, to abandon the system of drill planting, and to plant in hills so as to be able to cultivate both ways. Having purchased Thomas's smoothing harrow, I have changed my mind, and shall plant in drills again. It is claimed for this harrow, that it almost entirely does away with the necessity for hand-hoeing corn. It takes a breadth of 9 feet, and has 120 steel teeth which slope backward, so that it breaks and crumbles the soil without tearing out any well rooted plants. Friend Thomas assures me that it may be driven broadcast over a cornfield, after the corn has spread its leaf, without injuring a single plant, and that it will kill every weed less than an inch high. This looks like a large story; but my experiments with the harrow thus far indicate that it is true, and I shall not hesitate to adopt this system in cultivating my whole crop. If it will efficiently weed corn planted in drills, it is a great acquisition; for drill planting has some decided advantages. Not only is the yield of grain and fodder materially increased, but the corn can be put in without delay and have at least a fair start with the weeds. My course will be to plow a land on one side of the field, have the harrowing finished as soon as the plowing is, and follow immediately, on the same day, with marking off and planting.

In this way, I believe that, if I delay planting until the ground is well warmed, the corn will grow as early as any weeds. At the time when the leaf is well spread, there ought to be no weeds half an inch high; and the smoothing harrow would undoubtedly destroy them all at a single operation. This alone would give the corn such a start that its subsequent care would be a simple matter; but it is claimed that the harrow may be passed repeatedly over the field until the corn is a foot high, without bruising it to any noticeable extent. If this is true, as I believe, it will greatly simplify the raising of corn, and will relieve the farmer of an immense amount of labor that must otherwise be done at a time when hands are needed for other work.

We are now getting some tangible reward for the winter feeding and management of our stock. The manure cellar has been well filled with a solid mass containing very little straw, and with just enough clay-sand mixed through it, to make it handle easily. Precisely what the quantity is, we cannot tell until it is all out; but there will be not less than 400 two-horse loads, and I would not exchange it, load for load, for what would cost me $4 per load in stable cellars in town. A team and two men will haul out from the cellar and spread, from 12 to 15 loads per day. The most that I could do in hauling from town, would be to get 2 loads a day, during good wheeling, and it would be much harder on the team. I think that I am within the mark in estimating the value of the winter's manure, including that from the hogs and poultry, at $2,000. That which has been taken out during the winter and early spring and spread upon the land intended for corn, has started such a growth of grass, as has not been seen before on Ogden Farm.

The value of this manure makes a large deduction from the cost of feeding. In so far as it has been produced by the consumption of purchased food, it is as certain an addition to the intrinsic value of the farm, as though the manure itself had been bought and brought on to it. On looking carefully over the stock and the account of produce sold, I am satisfied that the increase has repaid all legitimate farming outlays, and that the manure on hand has cost nothing. I shall be able, this year, without purchasing to give a heavy dressing to the corn, corn-fodder and roots; and it is difficult to foresee now, anything that will prevent our getting profitable crops from the forty acres that will be cultivated this year. The remaining twenty acres have not yet been manured (except where sea-weed has been used), and I do not expect much from them. They were last year seeded down with clover, which looked well enough in the autumn; but the winter has been a very open one, and the present outlook is not brilliant. I cannot see that winter-killing has been materially lessened where the sea-weed was used. I think we made the mistake of feeding too closely in the fall. I shall try the experiment this year of not feeding the new meadows at all; and I have mixed red-top and timothy with the clover seed, hoping that the three will sufficiently cover the ground to protect the roots. As this year's seeding is on land that has been manured, it is reasonable to hope for better results. The present clover land will be re-sown with the mixed seeds, and brushed in with the smoothing harrow; the whole receiving a top-dressing of plaster at the rate of one bushel per acre. Whether this will do any good, remains to be seen. There is a popular idea that plaster has no effect near the sea-shore; its use is practically unknown here.

Sheep Dipping to Destroy Ticks and Scab.

All kinds of sheep are, at times, annoyed by parasites in their wool or skin, which can only be removed and destroyed by the application of substances which are poisonous to them. The most common of these parasites are the tick or louse, and the scab-mite. The sheep-tick, or properly perhaps, the sheep-louse, for such it is, is exceedingly annoying, occurring in the best kept flocks, and sometimes almost devouring the sheep alive. Figure 1 represents the tick magnified; an outline of one of the natural size is shown also, for comparison. The mode of propagation of the tick is peculiar; the egg is developed and the young animal passes into the pupa state in the body of the female, so that the little sacks attached to the wool, shown in figure 2, which are usually called eggs, are not eggs but pupæ. In this state, life is not so easily destroyed as in the perfect insect. From time immemorial, dips and washes of various kinds have been employed for the destruction of these little pests, and we might fill half the paper with recipes. The bases of most of these have been tobacco, hellebore, arsenic, or mercury, made use of singly or mixed, and mingled with tar, oils, and alkalies, in varying proportions. Now, however, the best results are obtained from the use of carbolic acid in some form, usually combined with soap, and applied in the form of strong suds. The skin, as is well known, secretes an oily soap, which, while it does not permit the wool to be easily wetted, is nevertheless itself soluble in water, especially in a soapy or alkaline water.

Fig. 1.

After shearing, the ticks to a great extent leave the ewes and are found upon the lambs. In small flocks the labor of dipping is not great, and a simple trough 5 feet long, 20 inches to 2 feet wide, and 3¹|₄ to 4 feet deep, (see fig. 3), is all that is needed. It should be furnished with an inclined table covered with slat-work, and set so that after the dipping the sheep may be laid upon it to drip, while the solution is rubbed in to the skin and then squeezed out of the fleece. The trough is best made of pine plank, the ends being secured in "gains" in the sides. These are bolted together, and the bottom being nailed on, is made tight by triangular corner pieces well pitched. With this trough, three men are required to dip; and for each sheep there should be about two minutes allowed; the sheep being either in the bath, or under manipulation a full minute. The other minute will be required on an average to catch the sheep, and to renew the bath, when necessary. When a large flock is to be dipped, this requires altogether too much time, as only thirty sheep can be dipped in an hour. They have a very expeditious way of dipping in Scotland, in which, by means of three sets of dippers, and a man to bring up the sheep, 140 to 150 sheep can be dipped in an hour. We illustrate this in the accompanying engraving (figure 4). The trough is 12 feet long, 20 inches wide, and 3 feet 3 inches to 4 feet deep. The sheep are confined near by; and some twenty at a time are hurdled close to the trough, and passed up an inclined gangway one at a time, to the dippers. A little gate opens and the sheep is driven or drawn out upon an elevated platform at the hight of the tub, as shown. One man takes the animal by the ears, and the other two by the feet. It is soused into the trough, and every part except the face thoroughly wetted, care being taken that none is swallowed or spattered into the eyes. The sheep is moved along slowly to the other end of the trough, and then lifted out or shoved up upon a platform capable of holding twenty or more sheep. The drips of this platform flow back into the trough; and the sheep are left to drip until another set comes on.

Fig. 2.

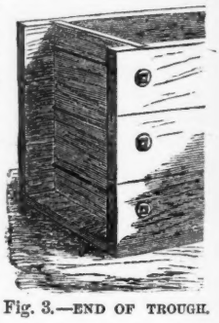


Fig. 3.—END OF TROUGH.

The employment of oils to soften the fleece is often recommended, and is probably good both for the health of the flock and for the wool. The best mode of applying oil with the dip is probably to pour about a pint of whale oil into the trough when each sheep is put in. The wool takes it up at once, and it does not interfere with the efficacy of the dip. In dipping a flock, both old sheep and lambs should be dipped, and in most cases the operations should be repeated at the end of a week to destroy any vermin that may have hatched in the mean time. A warm, calm day should be selected, and after dripping, the sheep should be stabled or folded, well fed, and thus kept warm until dry.

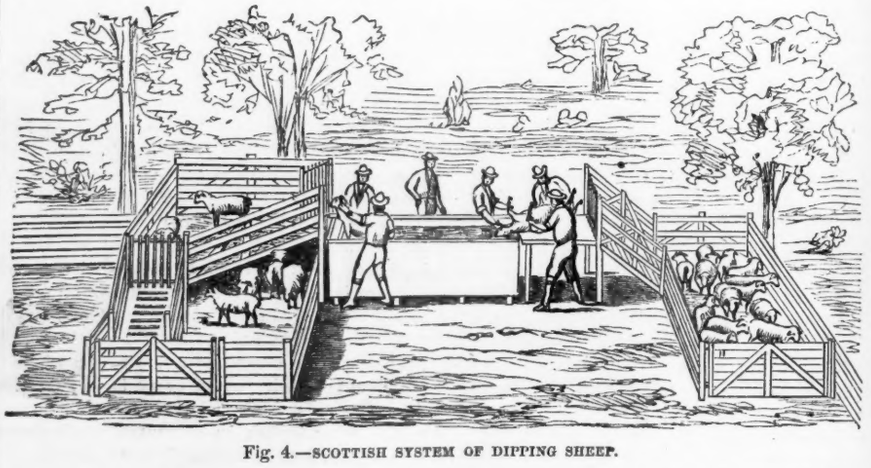


Fig. 4.—SCOTTISH SYSTEM OF DIPPING SHEEP.

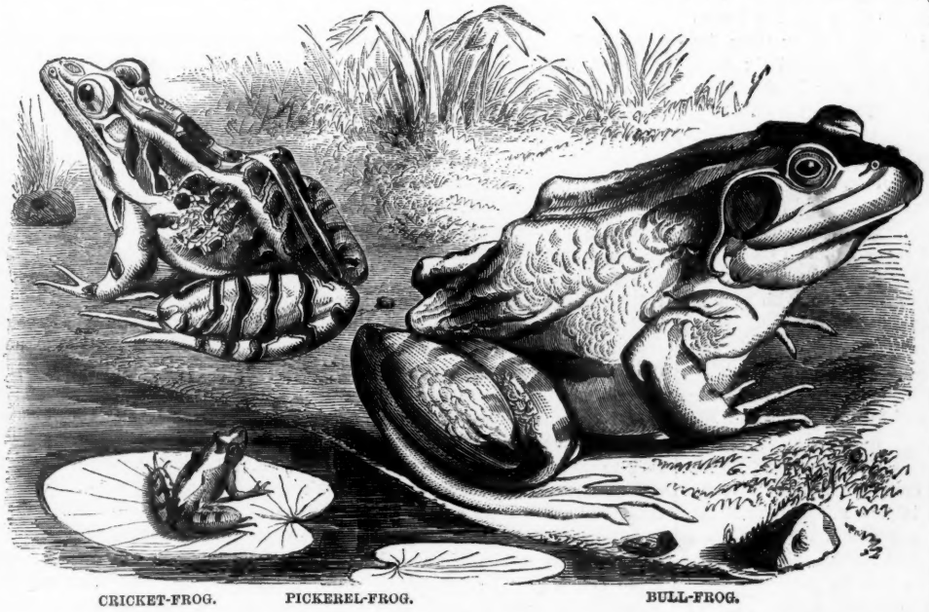
The "Prairie Apple"—(*Pomme Blanche.*)

The species of our native plants are very numerous, but among these there are but few which furnish articles of food. Berries and perishable fruits are more or less abundant in their season, but those native products which can be stored up are limited in number, and as articles of food are at best indifferent. Neither in the variety nor in the quality of his food does the savage equal the poorest among the civilized. Acorns and grass seeds are poor substitutes for corn and wheat; and among the several more or less edible roots used by the Indians there is none which approaches the potato in excellence and nutritious quality. A large share of the vegetable food of some of the Western tribes of Indians is the Prairie Apple, or Pomme Blanche, as it was named by the French *voyageurs*. It is the root of a Psoralea (*P. esculenta*), which is found from Wisconsin westward to the Rocky Mountains. The plant grows about a foot high, has leaves with five divisions, and its flowers are clustered in a dense head, much resembling a large clover; the flowers are purplish-blue. The root is turnip-shaped and somewhat farinaceous; and though it would be considered scarcely edible by us, is gathered in large quantities by the Indians and stored for the winter. Mr. Cary, who has given us many illustrations from the far West, has sketched a party of squaws—it being one of the Indian "women's rights"—engaged in collecting their supplies of this much valued Pomme Blanche.

SQUAWS COLLECTING THE PRAIRIE APPLE.

Our Native Frogs.

There is a strong resemblance between the Frogs proper, the Tree-toads, the Cricket-toads, and the true Toads. They are all remarkable in having their young strikingly unlike the adult animals. The young are hatched in a very incomplete state, and go through their developments in the water. At first they breathe by external gills, and have no organs of locomotion, except a tail. As the animal grows, limbs appear, the tail disappears, and the office at first performed by the gills is afterward assumed by the lungs. Some, such as the toad, when fully developed, leave the water, and only return to it at the breeding season; while the frogs are more or less aquatic. While in the young state these animals all feed upon vegetable food; but after they have reached their perfect development they are carnivorous. The frogs proper have a visible tympanum, or ear-drum; the upper jaw and palate are furnished with teeth, and in the male the throat has what are called "vocal vesicles," membranous appendages communicating internally with the mouth. These are capable of being enormously distended, and by the aid of them, the well-known piping and croaking are produced. The best known, as well as the largest of our species, is the Bull-frog, (*Rana Catesbiana.*) This sometimes reaches over 20 inches in length; and its deep bellowing may be heard for a long distance. The color of the upper portions varies from green to dirty olive, upon which are irregular black blotches; the body is yellowish-white below. The Bull-frog lives more generally in the water than our other species. It bites readily at a bait, if held near to its mouth, and even may be caught by a hook baited with a bit of cloth. This frog has the reputation of being destructive to young ducklings, seizing them from beneath the water. The hinder legs of the Bull-frog afford a highly esteemed article of food, occupying the place in the estimation of our gastronomers that the Edible-frog (*Rana esculenta*) does with those of Continental Europe. In the times when the English were strongly prejudiced against everything French, the French were looked upon as a nation of frog-eaters. The fact is that frogs are not, as is popularly supposed, a common article of food with the French, but are only used as a luxury. It may be that if the Edible-frog were found in England, the prejudice against frogs and those who ate them would not have been so strong. In this country much of this prejudice exists, and many who live where frogs are abundant deprive themselves of a most delicate article of food. A few years ago we met among the lakes of the New York wilderness, a person who annually caught barrels of frogs for the New York market, and who had never been induced to taste one. The hind-legs are the only portions used; these are skinned and fried in crumbs or made into a fricassee, in the same way as are spring chickens, which in delicacy and flavor they much resemble. The Green, or Bawling-frog, (*Rana clamitans*), is about 3$^{1}/_{2}$ inches long; it is green above and yellowish below. The Leopard-frog, (*R. halecina*), in some localities called the Shad-frog, is bright green above, with spots of dark brown, margined with yellow, and a yellow line extending from the eyes along the sides of the body. It displays great activity in leaping. The Pickerel-frog, (*R. palustris*), so called because it is often used as a bait for pickerel, is 2$^{3}/_{4}$ inches long. It is yellowish-white below, and above it is marked with two longitudinal rows of square spots, which are dark brown upon a ground of pale brown. This species is shown in the engraving. The Wood-frog, (*R. sylvatica*), only visits the water at breeding time. It is found in thick woods, and leaps with great activity when disturbed. It is about 2 inches long, pale reddish-brown above, yellowish-white beneath, with a dark brown stripe upon each side of the head. The smallest specimen shown in the engraving, though it usually passes for a frog, is properly a Cricket-frog, and belongs to the genus *Hylodes* (*H. Pickeringii.*) It is found in woods and upon plants near the water. Its shrill note is familiar to all who live in the country. A related species is called the Savannah Cricket, which is often tamed and sings in confinement. It is said to soon learn to know its owner, and to accept flies from his hand. The related Tree-frogs, or Tree-toads, belong to the genus *Hyla*,



CRICKET-FROG. PICKEREL-FROG. BULL-FROG.

Walks and Talks on the Farm—No. 78.

There seems to have been an unusual amount of fatality among pigs this spring, and I do not wonder at it. One of my neighbors says he had seventeen pigs from two sows. He was busy and did not pay much attention to them, and the first thing he knew the sows had eaten up every one of them. "Did you see her eat them?" I asked. "No," he replied, "they were under the barn and one day I thought I would go in and see how they were getting along, and they were all gone." The pigs probably died from neglect, and then the sow, having no other way to "bury her dead," ate them up to get them out of her sight. Another neighbor says his sow ate up a litter of a dozen. I have no doubt that sows sometimes eat their own live pigs, but where one pig is lost in this way a hundred die from neglect, or from disease inherited from parents that have been weakened by bad treatment. The latter cause is often overlooked. A farmer in Ohio writes to the *American Agriculturist* that he "Had a nice litter of fourteen pigs this spring; the sow in good condition and well kept. When a week old the pigs were taken sick and eleven of them died. The pigs all over the neighborhood are dying in the same way. They drop down, lie still, breathe very hard, become cold, and in an hour or two, or at longest one day from the time they were attacked, die without a struggle." It is probable that this is some hereditary disease derived directly or remotely from a defective male animal kept in the neighborhood. For my part I am not sorry that "Hog Cholera" and other fatal diseases are on the increase. They are necessary to convince us that dirty water, decaying food, filthy pens, and general neglect in breeding and management are not conducive to the health of pigs. I verily believe that there are people who think that bad treatment is good for a breeding sow—that it makes her hardier and healthier!

Feed liberally, work steadily, and clean thoroughly, is my motto in the management of horses. My great trouble is to get the horses rubbed dry and clean before leaving them for the night. Where horses are worked six days in the week, thorough grooming is absolutely essential to their health. The more highly they are fed the more important it is to clean them. Most men use the curry-comb too much, and the whisk and the brush too little. I do not myself insist upon it, but I believe it would pay always to take the whole harness from the horses when put in the stables at noon, and rub them dry, washing the shoulders with cold water and afterwards thoroughly drying them with a cloth. Every man and team on the farm costs me at least $750 a year; and I question if one farmer in a hundred duly appreciates how much he loses from having poor horses, and in not keeping them in vigorous health, and in condition to do a maximum day's work. Do not many of us from having inefficient horses, poor plows, dull harrows, rusty cultivators, shaky wagons, and other imperfect implements and machines, lose from one-third to one-half the whole cost of man and team? And besides this, do we estimate how much we lose by getting behind with our work from these and similar causes? I had an old mowing machine that I got with the farm that "for the sake of saving it" I used for two years. Directly and indirectly I have no doubt that machine cost me $1,000! It cut just as well as a Wood's or a Buckeye, but it was a one-wheel machine with a wooden cutter-bar. We split the bar and had to repair it; then we broke the knife and had to take it to the blacksmith shop to have it welded. He "burnt" it and it broke again. Then I sent to New York for a new knife. This cut off the finger of the only man who knew how to operate the machine and laid him up for several days. The consequence was, we did not get through haying until after wheat harvest. And you can imagine what kind of hay I had to feed out the next winter. Now I have two new mowers that a man cannot break if he tries; and in looking back I can hardly believe that I was ever so foolish as to waste time in tinkering an old worthless machine.

Where one has smooth land that can be mown with a machine, it is a great mistake to turn working horses out to pasture in summer. There can be no question that land will produce more food when the grass or clover is allowed to grow until it is in flower, than if constantly cropped down as it grows. With a good mower, tedder, rake, and unloading fork, the expense of getting the hay into the barn, if it is a good crop, need not exceed two dollars a ton. In the summer let the hay be cut into chaff and soaked in water for twelve or twenty-four hours, and the horses will eat it almost as readily as they will fresh grass. With the proper boxes for soaking it the labor is very slight. I used to chaff my hay with a horse-machine, cutting up enough at a time to last for several weeks; but I question if it is not better, after all, to cut it every day by hand as it is wanted. One of Gale's Copper-strip machines will cut in two or three minutes all the hay a team will eat at a meal; and if the knives are sharp, it is mere child's play to turn it. The object of soaking the hay chaff instead of merely moistening it in the ordinary way, is to soften it and allow it to absorb water—just as we soak dried apples before cooking them. Of course, we must not use more water than the hay will absorb, as in such a case it would wash out the sugar and other soluble nutritive matter from the hay. It is true that if the water is used for soaking the next feed of hay, the sugar would not be lost, provided it does not ferment. A little experience will enable any one to regulate the matter. Horses so fed, with a little grain, will fill their stomachs sooner and have more time to rest, and will be able to do more work than if turned out into a pasture—and in the morning you know where to find them and can eat your breakfast with dry feet. But the horses must be well groomed, especially at night, and the stables properly ventilated and kept clean and sweet. No food should be left in the manger. If it is not eaten up clean it should be removed before the horses are taken from the stable. I would give them what hay they would eat in the rack, but none to waste. I have a span of horses that will pull out from the rack, and waste, more hay than they eat, if allowed an unlimited supply. They should have a little hay in the rack to eat when they first come in from work, and after the harness is removed and they are rubbed down a little and are cooled off, give each horse a peck or so of cut feed. When he has eaten this let him be watered, and then give more cut feed. The practice of watering the horses at the pump or pond, as they are brought from the field, is not to be commended. A careful farmer may do it with impunity, because he would not allow them to drink too much when they are hot or tired, but many a good horse has died from careless watering.

If horses are worked steadily from 7 A. M. until 11.30, and then from 1.30 to 6 P. M.—say 9 hours, they will accomplish more than if they were kept longer in the field and rested every few bouts. When I hear the horn blow about 5 o'clock in the afternoon and see great, stout young fellows leisurely walking to the house to eat their cookies, leaving their teams tied to the fence, or with their heads hanging down in the furrow, I think this may be a good country for men but a hard one for horses. Because a horse cannot grumble and a man can, is no reason why the horse that does the hard work should not eat as often as the man who drives. By keeping on until 7 o'clock instead of 6 o'clock, and spending half an hour at lunch, the horses are kept out an hour longer in order to do half an hour's work. Would it not be better to keep right along until 6 o'clock, and thus let the horses have an hour's more time in the stable to eat before lying down to rest for the night? There would then be plenty of time to clean the horses, and attend to many little things that are now neglected. And, from the horses being in better condition, more work would be accomplished. In haying and harvesting, of course, we must often work as long as we can see, and the men, and horses too, should have lunch. But in plowing, harrowing, cultivating, and other ordinary farm work, there is no advantage in keeping the horses out so late, except occasionally in getting in the seed, etc., and when such is the case the horses need lunch just as much as the man who drives them.

Let the boys, when at work in the field, have lunch, morning and afternoon. *They* need it. When I was a boy, I went to plow at 6 o'clock, which was my father's rule, and I can recollect how terribly hungry I got by 9 o'clock, and how good a little bread and cheese and beer tasted about half-past nine or ten.

All young, growing animals, other things being equal, need more food and at shorter intervals than animals that have attained their growth. And the great secret of success, in raising improved breeds of stock, is to furnish the young animals all the food they can digest and assimilate. As long as they are growing rapidly there is little danger of their getting too fat. The popular notion that we cannot keep Cotswold, Leicester, or Southdown sheep in large flocks arises from the fact that when so kept the young sheep and lambs do not get the extra food and attention that they require. I have a flock of over ninety thorough-bred Cotswolds and about two hundred and fifty Merinos. And I am satisfied that with the Cotswolds a *given weight of mutton* can be kept in a smaller space than with the Merinos. A neighbor said of the Cotswolds: "You cannot keep so many. You ought not to have more than a dozen or so. These sheep are not like Merinos. You cannot keep them in large flocks. So and so tried it and the sheep pined away." Now all this is sheer and unadulterated nonsense. I happened to know the history of the flock he alluded to. Many of them were imported sheep brought over at different times by an English farmer who gave them good care and plenty of food, and they did remarkably well, although they had no "roots"—only good pasture in summer and plenty of good clover hay in winter. But by and by the farm and the stock passed into the hands of some young men who did not work the land as well, nor give the sheep the requisite attention, and both farm and flock run down rapidly. My father used to keep a large flock of Southdown and Leicester sheep,

and I spent two years on the farm where one thousand splendid Hampshire Down sheep were kept; I never heard the first intimation that there was any objection to having large flocks provided they had plenty of food and the requisite care and attention.

A wealthy New England gentleman writes: "Can you help me? I have an Elephant on my hands and do not know how to treat him. I have bought a run-down farm in Virginia of eleven hundred acres. It is a heavy clay loam, and was once considered one of the finest plantations in the country; but the 'skinning process' has done for it—wheat and corn all sold off the place and nothing brought on. The fields are now covered with a growth of young pines and its meadows with briars. There is neither muck nor peat in the vicinity. Does it need underdraining? How about turning under green crops, or using lime, phosphates, etc.?"

If I had this gentleman's purse I should have no fears of being able to make the farm as productive as it ever was, and a good deal more so. And it would pay, too. It probably needs draining. This can easily be ascertained by digging holes three or four feet deep, and if water flows in and remains there, it needs underdraining. Then after shearing, I would buy sheep by the hundred, and bran by the car-load. I presume bran can be bought for $20 per ton, and the manure from it is worth at least $14—in fact, it is better worth $20 than almost any artificial manure we can purchase. Give each sheep a pound of bran a day and half a pound of oil-cake. Keep enough of them, and they will gnaw down every green thing they can reach. If you get overstocked at any time feed more bran. The sheep will get very fat and can be sold to advantage. The manure will pay from half to two-thirds of the cost of the food. Success will depend very much on feeding liberally. In the meantime, put in the plows, with strong teams of oxen or horses. It will be rough work; but no matter. Keep the plow in where you can, and where you cannot, draw it through the briars on the surface, striking it in occasionally. Do not stop to back up. Set fire to anything that will burn. If grass grows as freely there as it does here, it will spring up on this partially plowed land and the sheep will eat it with avidity. Keep on plowing. Give up all idea of sowing any grain crop; but sow grass seed in the fall. By stocking heavily with sheep, and fallowing at the same time, the land, in two or three years will be subdued and will yield an abundance of rich grass. Then you can do anything you like with it. The summer-fallowing and the manure from the bran and oil-cake will make it very rich.

C. F. S. of Bucks Co., Penn., writes me that he "has been nearly all his life in a factory, but has always loved farming and wished to train up his children to it. So three years ago he bought a farm. He found it much poorer than it was represented, and also that money went a deal faster than he was led to expect." I can well believe the latter. But he says he "has faith in farming," and if so, he will come out all right. He asks me a half-dozen questions in regard to the application of manure, rotation of crops, etc., which I cannot answer. I should adopt the rotation *most convenient;* having reference to cleaning the land, time of sowing, harvesting, etc. The aim should be to distribute labor throughout the year; not to have too much to do one month and nothing the next. When much land is devoted to corn and potatoes, we have generally more work to do in the autumn than we can accomplish—with comparatively little to do in the spring. With me the most leisure seasons of the year are from the 1st of March until the 1st of May; and from the middle of August until the 1st of October.

From the 1st of October until winter sets in, we have a great deal to do. Men are scarce, wages high, and days short. Our object should be to increase our early spring work, and ease off on the late fall work. Sod land can be plowed earlier in the spring than corn stubble; and oats and peas do well on sod, and can be sown as fast as the sod is turned over. Barley seldom does well on sod land, unless plowed early the previous fall. We should sow this crop on the corn-stubble. Potatoes do well on clover sod, and can be planted before or after the corn crop, as we have time. After the corn and potatoes are planted, we have still time to plant beans.

"But you won't catch me planting any more beans," says one of my neighbors. "It cost me more to pull them, harvest and pick them once than the crop was worth." This is true; but he could not reasonably expect any other result. He planted on a tough sod, that was so wet as not to be dry enough in time to plant to corn, and was, besides, full of thistles. Last summer in this section was very wet; the beans could not be cultivated before the thistles were several inches high, and the labor of hoeing was so great, that a man had to work hard to hoe half an acre a day;—and this work had to be done in the midst of haying. By the time the beans were ripe, the land was again full of thistles and weeds, and it hardly needs to be said, that pulling was a slow and unpleasant operation. The weeds too, retarded the ripening of the beans, and it was difficult to cure them properly. Many of them mildewed; some of them rotted; the yield was light, and the whole crop had to be hand-picked. This was his first experience in bean culture and he is disgusted.

Nevertheless, beans, when properly managed, are a profitable crop, and the bulk of the labor comes at a comparatively leisure season. They can be planted after all other grain crops are in, and are off the land in time to sow winter wheat. But you must have dry, clean land. Nothing is better than a two or three-year-old clover sod, top-dressed the fall or winter previous. Let the clover grow, or pasture it until the middle of June; then turn over the sod carefully and drill in the beans, in rows 2½ feet apart, and in hills 12 or 15 inches apart, five or six beans in a hill. Use the cultivator freely and they will grow rapidly and mature early. Scarcely any hoeing will be needed, though nothing pays better than to go over the field and cut out every weed. Land so manured and well cultivated will be in splendid condition for wheat.

Beans are one of the worst crops a negligent farmer can raise; but a very convenient and profitable one for the farmer who has clean, dry land. You can apply the manure on the sod during the winter, get its effect on the early spring grass and clover, and still have enough left (from the manure and from the clover and grass) to produce a heavy crop of wheat.

C. N. D., who has written a book on farming, writes me: "In the last *Agriculturist* you speak of a 'good superphosphate.' What do you mean, whose is it, where is it, and what does it cost?" A good superphosphate is made by converting the insoluble phosphate of lime in burnt bones, phosphatic guano or mineral phosphate into soluble phosphate of lime, by decomposing it with sulphuric acid. It is a good article when it contains from 12 to 15 per cent of soluble phosphoric acid. If it contains ammonia in addition so much the better. But I believe it is a mistake for manufacturers to make superphosphate from unburnt bones. They cannot make it cheap enough. The bone-dust is itself worth too much as a manure They should look for cheaper sources of phosphate of lime. It is not for me to say, who makes a good superphosphate.

No matter what branch of farming we discuss either theoretically or practically, we are brought back to the old, old story that, as a basis of successful operation, we must have dry, clean land. Everything must be directed to this one point. We can do nothing without it; we can do everything with it.

"For crossing with common Merino ewes, to raise lambs or sheep for the butcher, had we better use a Cotswold or a Leicester?" If we had any Leicester sheep, that had been kept pure since the days of Bakewell, I should prefer a high-bred Leicester ram. But I do not know of such a sheep in the United States nor in Canada. A dozen or more years ago, Mr. Stone imported some genuine Leicester sheep, but no one seems to have understood their value, and they have been scattered and lost. They were too small and delicate to suit the popular taste. But if we had them now, they would be of great value to cross with common Merino ewes.

We have three breeds of long-wooled mutton sheep to select from: The Lincolns, Leicesters and Cotswolds. And the question to be determined is, which of these three breeds is the best to influence our common sheep. They are all good sheep. So far as the breeds themselves are concerned, it would make very little difference which we select. But when our object is to improve common flocks, *pedigree* is all important. We must select that breed which, other things being equal, has been kept pure for the longest period. The "prepotency of transmission" will be strongest in that breed whose good qualities have been longest and most thoroughly established. As I said before, if we had pure Leicesters, these would be the best; but they are not to be had in this country, and probably not in England. In order to give them greater size and vigor of constitution, with more lean meat and better breeding and nursing qualities, the breeders are believed to have resorted to a dash of Cotswold blood. This has improved the sheep themselves, but weakened their power of transmitting their qualities. The Lincolns I know little about. Until within a few years, I had supposed that the Lincolnshire sheep had been so crossed with the Leicesters as to have become nearly or quite extinct as a distinct breed. It is claimed, however, that at least one flock of Lincolns was kept pure; and if so, I should expect that a thorough-bred Lincoln ram would have great power in improving a flock of common sheep. In the absence of pure Leicesters, we shall have to select from Lincolns or Cotswolds. As to whichis best, I cannot say. The decision must depend upon which breed has the most desirable qualities and on *how long these qualities have been established.*

There can be no doubt about one thing. Many of the farmers, who last fall tried the long-wooled cross, will be disappointed, for the simple reason that they do not feed their Merino ewes well enough to secure a large flow of milk; and secondly because in nine cases out of ten, or ninety-nine cases out of a hundred, they used only common long-wooled, Canada rams.

Dressing and Cutting up Mutton.

No animal is more easily killed and dressed than a sheep, and the only obstacles to killing altogether upon the farm or away from the city, are, that sheep are so much more economically moved on their feet than dead, and suffer so much less than neat cattle from abstinence and thirst. When on the road, whether on foot or in cars, they lose flesh rapidly, even if they have the best of care, especially if they are very fat. Farmers have frequent occasion to kill a sheep or a lamb for their own tables. No fresh meat will keep good longer, none is healthier, easier digested, or better food. When properly cooked, no meat is more delicious or satisfying than well-fattened mutton. There is a very strong prejudice against it in many American families, because half-fed Merino mutton fried and greasy, served upon cold platters, eaten from cold plates tastes woolly, tallows up the teeth and is about as poor food as can be set before a civilized man. Whether it is roasted, broiled, boiled or fried, mutton should be served *hot* and eaten from hot plates; or, roasted or boiled it should be cold. It should never be cooked so as to lose all reddish color, except when old and tough, or when stewed, and it should never be eaten rare. Farmers may often with great economy keep a small flock of sheep well fed; yarding them nights, to be able at all times to kill one for food. We have little doubt they would find it much cheaper than to feed their hands and families so much upon salt pork. It would besides be healthier.

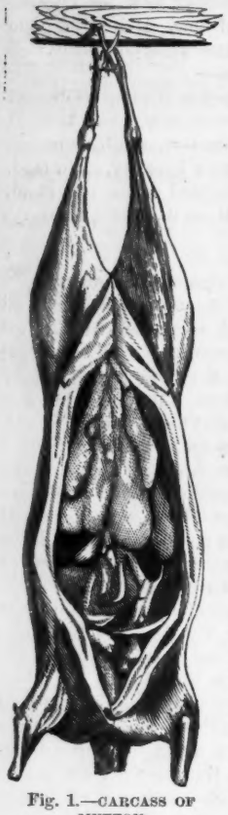


Fig. 1.—CARCASS OF MUTTON.

When a sheep is killed, its legs are tied and its throat cut. Perfect bleeding is secured by letting the head hang down over the door-sill, or tricing up one hind leg, thus partly suspending the body. The skin is removed by cutting along the belly and inside the legs. The head and feet are regarded as offal, and besides the tongue and brain there is little upon the head but dog-meat. When dressed for sending to market, paunch, stomach, and entrails, with the bladder and spleen ("milt,") are removed, leaving the heart, lungs, and liver, in place. The carcass is opened by a stick placed crosswise at the end of the ribs, or by pinning the flanks back, as shown in fig. 1. The interior should be wiped out with a damp cloth, and left sweet and clean.

When cold, the carcass may be split through the back-bone from the inside with a cleaver or knife and mallet. The outside view of one-half is shown in figure 2. A cut across the middle at the end of the ribs divides the half into fore and hind-quarters. Each is often cooked entire after being properly "jointed. To "joint" the hind-quarter or prepare it for roasting or boiling, cut through the spine at the vertebræ, not with a cleaver, which makes an uncertain cut, but with a strong knife and mallet; then cut the flesh of the leg free from the bone from the hock to the stifle joint, skewering the flesh over the end. The fore-quarter is often roasted (never boiled), and is best prepared by cutting off the neck proper, which makes a fair piece for a stew or haricot; taking out the shoulder-blade with as little meat adhering as possible, cutting between the vertebræ, as in preparing the hind-quarter; treating the breast ends of the ribs in the same way, so that when cooked they may be easily cut apart; taking out the bone of the leg to the elbow, and, finally, breaking all the ribs across through the middle.

Fig. 2.—HALF OF CARCASS.

When the hind-quarter is cut up, the leg *a*, fig. 2, is removed by the cut indicated; this leaves the loin *b* and the flank *c*. These are often roasted together; cut apart, the flank is used for stewing, the loin for chops; which are best broiled. The shoulder is often cut from the fore-quarter and cooked by itself. The breast *e* being removed, the ribs *d* are cut apart for fore-quarter chops or cutlets, for frying.

MR. HARTSHORN'S FENCE.

Fencing across Streams.

We give herewith an ingenious and simple flood-gate or bars for fencing across streams. A model and description of it was sent to the *Agriculturist* by Mr. Asa Hartshorn, of Ashtabula Co., Ohio. The engraving, prepared from the neat model, precludes the necessity of a particular description. Mr. H. writes as follows:

"I assisted my father 50 years ago in making a set of bars in this way, in New London Co., Conn., and they remained good for 30 years or more. The posts or crotches should be fastened firmly by stones, or be set well into the bank of the stream. Two staples and one link are required to each bar. These should be made of $^1/_2$-inch iron. The other ends of the bars rest on $^5/_8$-inch pins. In time of a flood, one or more of the bars may float up and swing around down stream, and when the water subsides, they may be returned to their places. These floating bars have the advantage over any other gate, as they open and let all flood-wood and trash pass. I am an old man and have whittled it out, so you can see how it should be on the stream. The round top pole rests in the crotch of the posts above high water, and in this way any stream 25 feet wide can be fenced with safety."

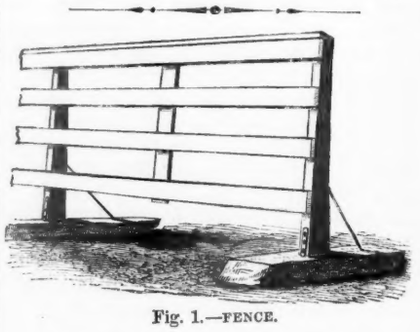


Fig. 1.—FENCE.

Fence Posts for "Heavy Land."

There are many sections in which limestone or sandstone rocks or boulders occur abundantly, which may be split into slabs of convenient size for the purpose indicated in the following suggestive communication. They are not unfrequently used for gate-posts and fence-posts, and of course are durable and excellent. "L. W. S.," of New Haven, Vt., writes, describing a plan which he has had in use and highly approves. There are many farms on which it may be imitated with profit. Wooden posts are expensive on account of the constant care attending their use from their decay and heaving by the frost. A post of this kind is valuable on account of the facility with which the fence may be shifted, as it is altogether upon the surface.

"Take flat stones (ledge limestone is best) from $2^1/_2$ to 5 feet long, 4 to 6 inches thick, and any convenient width, and drill inch holes 3 inches deep in one side of each stone, about 18 inches apart, or 9 inches from the center each way. Take $^5/_8$-inch round iron, cut 10 inches long; flatten one end about 4 inches, and punch two holes for screws. This is fastened on one side of each post with two screws, and inserted in one of the holes as in fig. 2. Then, for the brace, take pieces of the same-sized iron 25 inches long, flatten and punch as above stated, and insert the round end in the other hole, bend the iron to the post, and fasten; then fill the holes with melted brimstone, and you have a fence that will keep its place. I built some 25 rods in this way, three years ago, and it stands as true as when first finished. If it heaves in the winter, it settles back to its former place."

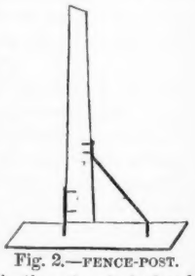


Fig. 2.—FENCE-POST.

Another suggestion comes from Mr. A. E. Smith, of New Haven Co., Conn. He recom-

mends the use of a $^3/_4$-inch rod of iron, bent in the middle over a mandrel of proper diameter, having its ends inserted in holes drilled about 3 inches deep, in flat stones about 18 inches square, as shown in figure 3. The fence is made by inserting strips or rails either lapping or cut beveling, and the beveled portions lapping between the parts of the post. Blocks of wood or pieces of board placed between the different ranges of strips would hold them at the required hights, as shown in figure 4. Several modifications of this fence are suggested. Mr. S. says: "Ordinary split rails trimmed a little at the ends, can be placed with the ends a little through the posts resting on each other;

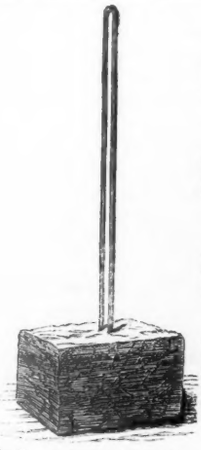


Fig. 3.—IRON FENCE POST.

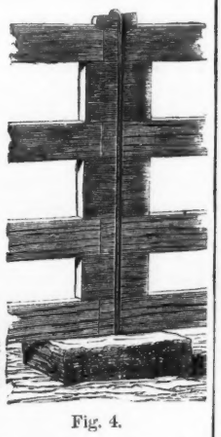


Fig. 4.

making a fence from which a length may be taken with little trouble, and which may be moved by taking apart, without injury, and with little expense. Two-inch plank, 5 inches wide, and 12 feet long, ship-lapped together at the ends with blocks 6 inches long, and any width desired, make a neat and durable fence. The stones should be left a few inches above the surface, and should be heavy enough to keep the fence in its place in a gale. Cement blocks might be used in the absence of stone—but in this State we can hardly imagine such a contingency."

We have seen fences made by boring holes through rails, or bars, and slipping the bars over single rods of iron set in stones in the way described; the bars forming adjoining lengths, alternately supporting one another. Mr. Smith's plan is a better one, as it admits of the easy removal of the rails, or the shifting of the fence.

Early Made Hay.

The practice of beginning to cut the grasses as soon as they are fairly in blossom is rapidly gaining favor. This favored time comes to many fields in this latitude, from the middle to the last of June. With the improved implements of hay-making—the horse-mower, rake and tedder, it is not difficult now for the farmer to gather all his hay crop at the time when it makes the most nutritious fodder. The early cured grass does not give so heavy a yield of hay to the acre at one cutting, and the same bulk will not weigh so much as the grass cured two or three weeks later. But very careful experiments show that the hay thus treated is much more nutritious; it is relished better by all kinds of of neat stock, and nothing is left in the manger. This tender, sweet hay is particularly important for sheep and young stock in the winter. If it do not bring so much in market or at the stables, at least, the hay, that is retained for home use, should be early cut. It does not exhaust the soil so much as where the seeds are allowed to mature. If the ground is very rich it allows of a second cutting in August. If not, it makes a heavy after-math and shelters the roots of grasses in the winter. The practice is increasing among our reflecting farmers, which is pretty good evidence that it is safe to follow.

Marketing Butter.

Having had several inquiries as to the best manner of preparing butter for retail marketing, we give the following account of the practice at Ogden Farm, which is similar to that of the producers of the celebrated Philadelphia butter, well known for both its excellence and high price.

The butter is all sold in half-pound prints, each of which bears the monogram or trade mark O F, as shown in fig. 1. These pats are $3^1/_2$ inches in diameter, rounded up in the center and about an inch thick at the edges. As soon as made, they are wrapped in damp cloths, about 8 inches square. The printing is done in a wooden cylinder $3^1/_2$ inches in diameter, of which the printing die forms the bottom. Fig. 2 shows a section of the cylinder with the parts in place. The walls of the cylinder are $^3/_4$ of an inch thick; *a a*, are brass screws, 2 inches long. There are three screws, which serve as legs to the mould; they may be turned in or out to regulate the quantity of butter; *b*, is the printing block, and *c*, the block on which it is supported. By substituting a thinner block in the place of *c*, heavier lumps may be printed. The butter is pressed closely into the mould and "struck off" even with the top of the cylinder. The pat is thrown out by pushing the block *c*, from below, mould and all going into cold water for a moment. It is necessary that all parts of the apparatus be kept soaking wet. The printing is laborious but it pays.

Fig. 1.—STAMP.

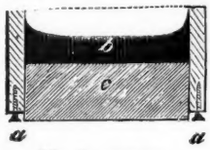


Fig. 2.—MOULD.

As fast as the pats are made and wrapped in cloths, they are packed in the market tub, fig. 3, which is 2 feet high, $2^1/_2$ feet long on top and 1 foot 7 inches wide. It is made of cedar, and is brass hooped and painted; the lid is hinged in the middle so that either side may be raised, or the whole may be lifted entirely off. One of the staves at each end rises about 6 inches above the top and has holes cut through for handles. An oak bar, with a head on one end and a hinged hasp (brass is preferable) on the other, is passed through these handles to hold the lid down.

Fig. 3.—BUTTER-TUB.

When it is pushed home, the hasp can be turned down over a staple at the end of the tub and secured with a lock or pin. This tub is only a case for the tin, ice, and butter tray which lines it. The ends of this tin tray are partitioned off at a width of about 6 inches, as shown in fig. 4, and the compartments so formed at the ends, which are for broken ice, are closed with hinged tin covers. The center compartment is fitted with tin studs supporting five tiers of movable wooden shelves; and each shelf consists of two pieces for facility of handling. The shelves allow, with the bottom, six tiers of prints. A section of this tray, packed with butter and ice, is shown in fig. 5. Packed in this way, a blanket being thrown over the tub in the wagon, butter may be carried around for a whole day in the hottest summer weather, without losing its hardness.

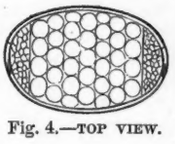


Fig. 4.—TOP VIEW.

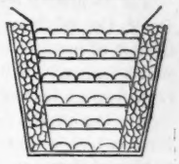


Fig. 5.—SECTION.

More Styles of Tail-board Fastenings.

During the year past we have exhibited several forms of tail-board fastenings, which to us, and most of our readers, have, at least, had the merit of novelty. Some have been great improvements upon the old rod and tail-nut, and all have had some feature to recommend them either for dumping carts or wagons. Now we have two more to show. The first, fig. 1, is from Isaac S. Bachtel, of Stark Co., O., who writes: "I first saw this tail-board fifteen years ago. You will observe it may be loosened from either side, and swung open like a gate, or it may be taken out altogether. A chief merit is that there are no strips in the corners of the box. I use it behind and before on that account." The fastening of each end consists of two semi-circular straps of $^1/_4$-inch iron, one

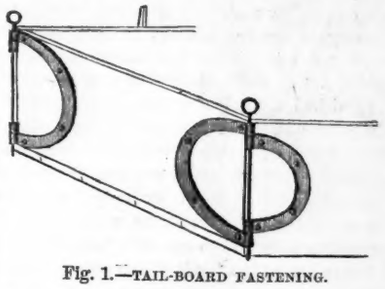


Fig. 1.—TAIL-BOARD FASTENING.

attached to the tail-board, the other to the outside of the box, and forming a hinge when united by a $^1/_4$-inch rod passing through their bent ends. This rod when withdrawn to disengage the board, should be immediately replaced.

The other plan is sent us by Mr. C. H. Rue, and consists of a slight modification of the common rod. A rod of the usual size, say $^1/_4$-inch iron, is fixed upon the tail-board, as shown in fig. 2. This rod terminates in a strong hook at each end. These hooks go into eyes in bolts, one or both of which are fastened with tail-nuts, and having some play, so that after the hooks are in they may be screwed up tight. A few turns of the nut are sufficient to relieve the strain upon the hooks, and the rod having a little play when one hook is loose, the other is easily unfastened. The bolts are inserted a little lower than

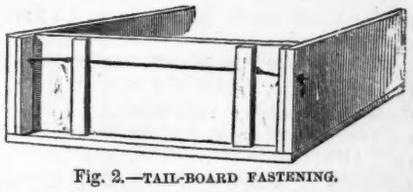


Fig. 2.—TAIL-BOARD FASTENING.

the line of the rod, so that when screwed up the board will be held down and kept from rattling. The cheapness and convenience of the arrangement are apparent and well worth imitating.

Classification of Breeds of Fowls.

The following communication from Jas. H. Fry & Co., of New Brighton, N. Y., opens a subject of interest to poultry breeders, and upon which all will not agree. In the main, the classification is doubtless correct.

"In the production of that great variety of fowls which challenges the admiration of the public at our poultry shows, the attention of breeders has been turned mainly in three directions, viz.: to produce eggs, flesh, or feathers. Consequently we have some varieties prominent as prolific layers; others which are chiefly valuable as table birds; and still others which are admired on account of their diminutive size, or the beauty of their plumage.

Among these various breeds, there are still other distinctions; some varieties being non-sitters; others periodically broody; some quiet and domestic in their habits, bearing confinement well, and never seeking to roam far from home; others wild and vivacious, chafing under confinement, or if at liberty, roaming far and near, from early morning until sunset; some are fair winter layers, others even under the best of treatment are almost exclusively spring and summer layers; some are hardy, others are delicate; some lay large eggs, others small or medium sized ones; and there are many other minor peculiarities which we have not space to notice here. A knowledge of the more prominent distinctions of the several varieties will determine the selection of a purchaser of fancy poultry. To obtain this knowledge from any work on poultry which we have seen, it will be necessary to wade through a considerable amount of dry detail. We have therefore thought it would not be uninteresting to your readers if we furnished a condensed classification of the various breeds, under the headings suggested above. Indeed, the propriety of furnishing this information through some popular channel of communication has been strongly impressed upon us, by the many questions which our correspondents have put to us. We therefore offer the following as the result of our present experience.

A—Prolific Layers.—Hamburgs, Spanish, Leghorns, Polands.

B—Rapid Flesh Makers.—1. La Fleche, Houdans, Crevecœur, and Dorkings; these four varieties are the true table birds. 2. Cochins and Brahmas; these are more muscular and more heavily framed than the four varieties first named under this head, and their flesh is not so white and juicy, hence we class them as inferior in this point.

C—Ornamental.—Bantams, Silkies Sultans, Rumpless, etc.

D—Non-sitters.—Houdans, Crevecœur, La Fleche, Spanish, Polands, Hamburgs, Leghorns.

E—Sitters.—Cochins, Brahmas, Dorkings, Games.

F—Domestic and Quiet.—Brahmas and Cochins.—These birds are very sluggish in temperament, and can be penned in with a fence three feet high.

G—Active and Vivacious.—1. Hamburgs and Games.—A fence twelve feet high will not restrain these varieties when startled. 2. Spanish, Leghorns, Dorkings, and the French varieties. All of these will require a high fence to keep them in, though the Dorkings and French fowls being heavy birds cannot rise upon the wings as well as the Spanish and Leghorns.

H—Hardy.—1. Brahmas. These birds seem to endure the coldest weather without injury. 2. Houdans, Hamburgs, Crevecœur, Spanish, and Leghorns.—Except that their combs are liable to be frozen, the birds under this second division bear exposure well in winter.

I—Delicate.—La Fleche, Polands, and most of the Bantams and ornamental fowls.

J—(1) *Layers of Large Eggs*, averaging about 7 to the pound.—La Fleche, Houdans, Crevecœur, Black Spanish. (2) *Layers of Medium Eggs*, averaging from 8 to 9 to the pound.—Leghorns, Cochins, Brahmas, Polands, Dorkings, Games, Sultans. (3) *Layers of Small Eggs*, from 9 to 10 to the pound.—Hamburgs.

K—(1) *Large Birds.*—Cochins, Brahmas, La Fleche, Houdans, Crevecœur and Dorkings. (2) *Medium Sized Birds.*—Polands, Spanish, Leghorns and Games. (3) *Small Birds.*—Hamburgs, Sultans. (4) *Diminutive.*—All the Bantams and Silkies.

The positions which we have assigned the various breeds in the foregoing classification, will, in the main, be accepted by poultry breeders without challenge. The classification will necessarily provoke criticism upon some points. We offer it simply as an expression of our experience to the present time."

Put in Roots.

With too many of us roots for cows and other stock are regarded as entirely secondary to the main crops of grain and potatoes, and so are neglected until after corn is planted, if not altogether. Swedish, or Russian turnips, as they are often called, do not need the whole season to grow, and if sowed by the first of July, are in early enough, except on some cold, hard soils, where full crops can hardly be expected at all. On such ground it seems as if Ruta-bagas required the whole summer to make roots and establish connections with the soil, so that they may make their great growth in the autumn.

When Swedes (ruta-bagas) are to be grown, the early part of June should be devoted to preparing the land by manuring and deep plowing, and such thorough harrowing and tillage as shall kill at least two crops of weeds. A Shares' harrow will be found a very efficient tool for preparing a mellow surface. Between the 20th of June and the 20th of July, according to circumstances, mark out the land in drills 30 inches apart, and sow, in the drills, by hand, about two barrels of good superphosphate to the acre. This should be sifted and free from lumps, and sowed evenly, a little scattered. Then, with a hand seed-drill, sow the seed at the rate of one pound to the acre, that is, use as little seed as possible. The early part of the month is not too late to get a fair crop of carrots and parsnips, and a moderate one of mangels or sugar beets on rich soil. We can hardly urge the cultivation of roots too strongly. No crops pay better on milk and sheep farms. Near city markets, where ruta-bagas can be sold, the late-sowed ones which do not get so large bring a better price.

COUGH AND HEAVES IN HORSES.—A western physician of our acquaintance, who keeps several horses finds sunflower seed a valuable remedy for cough and heaves. So useful does he consider it, that he is careful to keep a good supply of it always on hand. He claims to have cured a marked case of heaves by feeding a quart or two of the seed daily, and when any of his horses or mules show a disposition to cough, a feed of sunflower seed is given at once, and continued until relief is afforded.

It is said that on the prairies where Rosin-weed (*Silphium terebinthinaceum*) is abundant, that horses never have the heaves—and that the resinous leaves of the plant are dried and fed in moderate quantities with beneficial results.

The Preparation of Tobacco Land.

The most important requisite in attempting to raise a tobacco crop is a rich and well tilled soil. As to quality, aside from manure, any soil in a tobacco region which would rank as first-class corn ground may be adapted to tobacco. The amount of manure which may be profitably applied can hardly be estimated. We have never known tobacco land too rich, though too much of guano, and perhaps of other concentrated manures, is disadvantageous. It would, perhaps, be safe to say: let the manure applied be worth half what you expect to realize from the crop. The best manure is doubtless barn-yard manure, which has been made from well-fed, mixed stock, and which has lost nothing by fire-fanging nor by water. Ashes, leached or unleached, are always valuable. Salt, plaster, and lime are uncertain in their effects. Peruvian guano, superphosphate, bones, etc., are always useful in moderate quantities.

The yard manure should be spread and plowed in deep, then hand manures sowed on and put under the surface with a Shares' harrow. Then, as soon after the middle of the month as possible, mark out the field as for corn of small growth, and set out the plants on the first rainy day, selecting the largest first. Water the seed-beds thoroughly before moving the plants, and give them a good application of liquid manure after taking out those needed the first day. The plants are set out precisely as cabbage plants are, but not so near. The rows are usually $3\frac{1}{2}$ feet apart, and the plants are about $2\frac{1}{2}$ to 3 feet apart. If the grub or cut-worm destroys any, or if any die from whatever cause, replace them at once. The tillage should be like that required by cabbages, but no hilling up around the plant of any account should be done.

Prize Essay on Making and Packing Butter.

BY MRS. M. A. DEANE, FARINA, FAYETTE CO., ILL.

MANAGEMENT OF THE MILK.—The advantage gained during the hot season by the rapid and complete cooling of milk as soon as it comes from the cow, can hardly be over-estimated, as recent experiments show that the milk, thus cooled, will keep sweet much longer and yield its cream more readily and more abundantly; and, as all experience has proven that the quantity of butter made, depends greatly upon keeping the milk in such a state as to secure *all* the cream. A saving of labor is effected by this process, as the milk, when cooled to the required temperature (60°), may be set in deeper vessels, thus diminishing, greatly, the number of vessels required, and, consequently, the labor of cleansing them.

In a large dairy, the washing and scalding, of the shallow pans so much in use, is always a laborious and tedious process. There are many methods, more or less simple, for cooling milk. Patents have been granted for various plans, and many enterprising dairymen are testing ingenious devices of their own, with excellent success. If it is not convenient to procure a cooler, the milk may be cooled by setting some large pails into a trough or box, partly filled with very cold water, and pouring the milk into these pails as fast as it is drawn from the cows, allowing it to stand until of the required temperature; if necessary, renewing the water.

The Pails used in milking should be made of tin, never of wood. It is very difficult, almost impossible, to cleanse wooden pails so perfectly that they will not impart some degree of acidity to the milk, though it may be an insensible degree. Owing to this fact, some factories make it an absolute requisition that only tin pails shall be used by those who furnish them with milk.

The Dairy-Room.—Much of the success of butter-making depends upon the fitness of the place or room where

the dairy is kept, and upon its condition as to cleanliness and freedom from taints and odors of every description. If a cellar is used, it should be a dry one, and perfectly clean to the remotest corners, having no hidden remnants of decayed vegetables or fruit, or anything which could possibly offend the most delicate olfactories. If a room in the dwelling-house is used, or a milk-house, built separately, which is, perhaps, better, it should not be situated near a hog-pen, stable, or anything of the kind, nor should anything likely to impart its odor to the milk, as smoked ham, codfish, onions, or even potatoes, be allowed a place in the room. Nothing will receive a taint more easily than milk or cream; and all bad odors absorbed by the milk, are certain to be concentrated in the butter, they not having the accommodating disposition to run off with the buttermilk. We have known butter to be spoiled in consequence of the milk standing in the room with a smoky furnace, and it is sometimes sensibly affected by the smoke of burnt grease and other unpleasant smells from the cook-room. So if a milk-room communicates with the kitchen, the door should be kept closed.

Temperature.—The milk, whether in a cellar or in a room above ground, should be kept cool in the summer, never being allowed to reach a temperature above 60°, though it may fall below that without detriment. Milk should be set upon racks, rather than shelves, so that the air may circulate freely under it, as well as over and around it. Racks are made in various ways; the most convenient we know of is constructed as follows: Take a 6×6 pine post, of a length suited to the hight of the room, place it upright upon a pivot so that it will revolve, and nail slats of half-inch stuff to each side of the post, at such intervals as will give room for the pans or other vessels used. Two such slats nailed to opposite sides of the post, will support two pans of milk, one on each side of the post. The rotary arrangement enables one to stand in the same place to skim a whole rack full of milk. If pans are used, the seamless ones are best, but deeper vessels, either of tin or earthen-ware, are perhaps preferable, provided the milk is cooled before being set.

Washing the Utensils.—The greatest care is requisite in cleaning these vessels, of whatever material or form, as also of all the other utensils employed in butter-making. This is a matter of much greater importance than many suppose, as the smallest neglect in regard to it is sure to tell upon the cream and butter. The pans and pails should be washed thoroughly, in two waters, each time being made as clean as possible with the water used; they should then be scalded thoroughly with boiling water. It is not sufficient that the water should be tolerably hot,—that it should steam in the kettle, or anything of the sort; it must "*dance* as well as sing." The churn, butter-bowl and ladle, or butter-worker, if one is used, should be washed and scalded with equal care, and all should be carefully wiped and dried, unless some arrangement is made for drying in the sun, which will do very well for tin and earthen-ware, and save the labor of wiping. In summer it will be necessary to see that all utensils are cooled perfectly, before using them.

Skimming.—The milk should be skimmed as soon as all the cream has risen, and before the milk has thickened. The exact time required for the cream to rise, will, of course, depend upon the temperature, but a little experience will enable one to tell. At the time the cream should be removed it will have a bright, healthy appearance, a rich, yellow, uniform color, and such an adherency of particles as will enable one, sometimes, to remove the entire cream at one dip of the skimmer. If allowed to stand too long without skimming, both the quantity and quality of the cream will be seriously affected. The surface will become discolored, blotched and knobby, while underneath, the cream is rapidly yielding to the corrosive tendency of the acid in the milk. The thickest cream may be as surely destroyed by standing on the milk, as would be the firmest fabric in a bath of sulphuric acid. When thus destroyed, the cream is replaced by a thin, watery substance, having no resemblance to cream or milk. These facts, which may be easily verified, show how essential it is that the cream should be taken off before the milk has acquired any great degree of acidity. Yet, in order to make the largest quantity of butter, care must be taken not to remove the cream too soon. Many neat, thrifty housewives make a practice of "skimming up" all the milk at stated intervals, so as to be through with the job. This is, of course, very pleasant, but it involves considerable loss; as they do not get the full cream from the newest milk. The milk should all be skimmed at the same age, provided it has had the same conditions as regards temperature, etc.; it follows, then, that some milk should be skimmed every night and morning.

Winter Treatment.—It will be found that in winter, milk and cream require somewhat different management. The effort must now be to keep the milk *warm* enough rather than to keep it cool; and a failure in this respect will very materially affect the quality of the butter. If the milk is very much too cold, it will have to stand so long for the cream to rise, that it will become bitter, often long before it becomes sour, and the quality of bitterness will be still more apparent in the butter. To prevent this, the milk should be kept at a temperature of 60°, if possible; if not, the milk may be scalded as soon as strained, and the cream will then have a fair start before the milk has parted with this extra heat, unless the place where it is kept is very cold. If scalding is not found sufficient, two or three spoonfuls of sour milk (which has soured quickly and is not bitter) may be added to each pan of milk when it is set away. This will help to sour the milk and cause the cream to rise quicker, thus making it less liable to become bitter. It may also help to prevent bitterness to salt the cows often, and see that they do not eat decayed vegetables or any substances which may impart a bad taste to the milk.

The Cream should be kept at about the same temperature (60°), and should be well stirred as often as new is added. It should not be kept too long before churning, never more than a week—four or five days is better.

Churning.—The cream should be churned at a temperature of 62° or 63°. A great deal of experience may enable one to guess at this temperature with tolerable cleverness, but it is better to use a thermometer and be sure. This temperature will be increased during the process of churning, to 68° or thereabouts, when the butter will come. If it should be hard and granular, refusing to come together well, throw in a little warm water, churning all the while, and the butter will soon be gathered and ready to take up.

Sweet cream should never be mixed with sour cream just before churning, as sweet cream is much longer coming, and hence, likely to lose itself in the buttermilk. To salt the cows once a week is generally believed to facilitate the process of churning. In case they have not been thus salted, some put a little salt into the cream before churning; but we think that in most instances where butter is very long coming, it is owing to the temperature of the cream. It may be so cold as to require churning all day to bring the butter; a tax upon one's patience and strength, if performed by hand, equal to the cost of a dozen thermometers.

Coloring.—As a rule, it is absolutely essential in the winter to color butter, in order to make it marketable, or at all attractive as an article of table use at home. There may be a possible exception to this rule, in cases where cows are fed largely upon yellow corn-meal, pumpkins, carrots, etc., but this does not lessen the importance of the rule. Of the various substances used in coloring butter, we think that carrots (of the deep yellow variety) give the most natural color and the most agreeable flavor. Annatto, however, is principally used, and with most satisfactory results. Some of the most celebrated butter-makers in the country color their butter with pure annatto, giving it a rich, deep orange color. They do not aim to produce the color which is natural to summer butter, but one considerably richer; coloring it both summer and winter. If carrots are used, they should be grated, the juice expressed through a thin cloth, and put into the cream just before churning. A small quantity of annatto, dissolved in warm water or milk, may be used in the same way, and with similar results; but a richer tint is produced with annatto by coloring the butter directly. To prepare the annatto for this purpose, steep it in butter for some hours over a slow fire, then strain through a fine cloth into a jar and keep in a cool place. When ready to work the butter, melt a small quantity of this mixture and work it in carefully. A small proportion of turmeric is sometimes mixed with annatto and prepared in the same way. With this method of coloring, an inexperienced hand is in danger of working the butter too much, in the effort to produce the same shade of color through the entire mass, which is, indeed, a difficult attainment for a novice. Coloring in the cream obviates this difficulty entirely, the butter being of a uniform color when taken from the churn.

Salting and Working.—While salt is not to be undervalued as a preserving agent, it must be remembered that too much of it destroys or overpowers the fine flavor and delicate aroma of the best butter. Be careful to preserve all the sweetness of the fresh butter, salting just enough to remove its insipidity. It is important to use the best salt. "Ashton's Factory Filled," has great fame, and is extensively used. But any one can test the purity of salt, and perhaps other brands of Liverpool salt may be found equal to Ashton's. Pure salt is perfectly white and destitute of odor. It will dissolve in cold water without leaving any sediment, or throwing any scum to the surface, and the brine will be as clear as pure water, and entirely free from any bitter taste. Prof. Johnson says in the American Agricultural Annual, 1868, that the "'Onondaga Factory Filled' must take rank second to none, provided the ingenious processes of Dr. Goessmann which were employed in Syracuse, a few years since, are still in use." The buttermilk should be nearly all worked out and the butter well washed, before salting. Washing may abstract somewhat from the flavor of the butter, but it is, nevertheless, a necessity, if the butter is expected to keep long, as it completely removes the cream and casein of the buttermilk, a part of which might otherwise remain in the butter.

Butter should stand but a short time after salting, before it is worked enough to remove nearly all the water, when it may be resalted if necessary; there should be sufficient salt left in the butter at this time to make a strong brine of the little water that remains. It may then stand until the next day, when it should be worked and packed. On no account should butter be allowed to stand long before working, as it is apt to become streaked, often so much so as to necessitate working over, in order to restore a uniform color. Besides, if neglected too long at this period, a tendency to rancidity will be rapidly developed.

We realize the difficulty of giving explicit directions for the second and last working of the butter—its final preparation for packing. If not worked enough, every one knows that the butter will soon spoil; if worked too much, it is spoiled already; though the danger of its being overworked is less. A great deal of judgment and discretion and somewhat of experience, are requisite in order to determine when it is worked just enough; the virtue of stopping, in this, as in many other cases, being second only to that of doing. There are some suggestions, however, which may prove valuable, particularly to those having little experience. 1st. The butter should not be too warm when worked, nor should it be so cold as to make working difficult. Immerse the ladle for a few minutes in boiling water, and cool perfectly in cold water; then, if the butter in the bowl is warm enough to admit of putting the ladle through the whole mass without difficulty, and dividing it up without crumbling, and still hard enough to cut clean and smooth, not the slightest particle adhering to the ladle, then it is in the right condition to work. 2nd. It should be worked with careful and gentle, yet telling *pressure*, and not by a series of indiscriminate stirrings and mashings and grindings against the sides of the bowl. The butter is composed of minute globules, which are crushed by this careless handling, thus rendering the butter greasy and sticky, whereas it should retain its clean, solid individuality, up to the time of packing, always working clear from the bowl and never sticking, in the least, to the ladle. 3d. The butter should not be worked until it is perfectly dry. When ready to pack, it should have a slight moisture about it, a sort of insensible remains of the clear brine which has been working off, and at the last, enough, so that when a trier is thrust into it, a drop or two of brine will ooze out around it, and the trier itself be slightly wet, as if by a light dew. Overworking destroys all the beautiful consistency of the butter; makes it dry and sticky; greasy in summer, and tallowy in winter; gives it a dull appearance, and a tendency to become rancid. Altogether, overworked butter is very disagreeable, if not positively bad.

Packing and Marketing.—Butter should be packed solid, leaving no interstices for air, and should completely fill the firkin, tub or pail, as the case may be, leaving a flat surface. It is common to put a cloth over the top and a layer of salt on the cloth. Some think it better to wet the salt, making a brine. The cover should then fit tightly, leaving no room for air between it and the butter. Some butter also, goes into market in the form of rolls, some pineapple, and other fancy forms for the table, etc. Every person should be guided by circumstances in his choice of styles for putting up butter, always being careful to give it a neat and attractive appearance. If living at a distance from market, and the dealers at his market-place buy for New York, he should pack in firkins or tubs, so that the butter can be safely kept through the season, and the whole lot disposed of at once, in the fall. If at a convenient distance from New York, fresh tubs or pails may be sent in at intervals, all through the season, or the whole kept through, as he chooses. Or if in the vicinity of any city, good chances offer in the way of supplying hotels, restaurants, etc., the butter should be put up in a style to suit the customers. Some, who are hundreds of miles away, make shipments of butter to New York on their own account, instead of selling to buyers at home, in which case, if their butter is really superior, they will not be long in making a reputation, and will soon be able to secure a high price. Some few have a stamp of their own, and labor assiduously to establish a value for it, as a trade-mark. It is said that the best butter-maker in the vicinity of Philadelphia (who never sells for less than a dollar per pound), uses a stamp inherited from his father, and that "not a pound of inferior butter ever went to market with that stamp upon it." If you would attain to a goodly fame, then, as a butter-maker, and reap a rich reward for your pains, attend carefully to the minutest details in making, and never sell any but good butter, put up in neat packages; never allow your "trade-mark" to lose its value.

[COPYRIGHT SECURED.]

THE GREAT NORTHERN SHRIKE OR BUTCHER-BIRD—(*Collyrio borealis.*)—*Drawn by H. W. Herrick, and Engraved for the American Agriculturist.*

The Shrikes and the Fly-catchers form a small family of birds, the members of which have a strong and compressed bill, which is abruptly hooked at the tip, and the upper and lower half both strongly notched. They are all carnivorous, feeding on insects, reptiles, and smaller birds. We have but four Shrikes in North America, and only one of them common in the Northern Atlantic States, where it is generally known as the Butcher-Bird. Its name of Great Northern Shrike would convey the idea of a large bird, but it is only a little larger than the other species, and at most only about 10 inches long, and of the form shown in the spirited drawing by Mr. Herrick. The upper parts of the head and body are of a bluish-ash color, the under parts white; the wings and tail are black. The bird is found from the Eastern United States to Vancouver Territory, building its nest in the smaller trees or tall shrubs. It is especially noticeable for its disagreeable qualities. It possesses a remarkable power of imitating the sounds of other birds in distress, and thus attracts the attention of smaller birds, which come to the aid of their supposed fellows in trouble and fall victims to the strong bill and sharp claws of the Butcher-Bird. It is said that it will even attack birds confined in cages, coming fearlessly near dwellings for the purpose. It is altogether a very quarrelsome and unamiable character. Not only does it destroy defenceless birds, but it seems to be proud of the achievement, and hangs them up as trophies. Instead of devouring its prey at once, it impales it upon a thorn or sharp twig. The slender thorns of the Three-thorned Acacia are favorites with the bird for this purpose, and it is not rare to find this tree decorated with the dead bodies of small birds, as well as those of different insects which have been suspended there by the Butcher-Bird. What object the bird can have in thus suspending its dead prey, seems to be a puzzle to naturalists. It probably has similar tastes to those gourmands, who prefer to have their game hang until it is on the verge of decay. A related species is common in Continental Europe, and has similar habits.

To prevent Birds pulling Corn.

There are numerous devices for keeping the birds away from corn, among which are scarecrows, wind-mills, bits of tin hung on strings, suspended twine, and powder and shot. We had faith in the stuffed man, until we saw the birds use him as a roost; in the twine, until we found corn pulled up right under the strings; and in shooting, until we found, we had to keep a man in the field all the while there was danger, in which case, the man would answer without the powder. Where the services of children are available, continual watching for two weeks, will save the corn. But this is not always the case, and the cornfield is often at a distance from the dwelling. Coating the seed in tar, is one of the best safeguards we have ever tried. The strong odor is offensive to the birds, and after a few trials of the article they quit in disgust. Caution however should be used in putting on the tar. The thinnest coating is just as effectual as one that will prevent germination. Stir in with the seed the smallest quantity of tar that will give a coating, and to prevent the adhesion of the kernels, stir in plaster, ashes, or dry earth. If the tarring has been neglected, and the corn is already up, it is a great safeguard, to sow corn broadcast at the rate of two quarts or more to the acre. The birds will take the corn that is most accessible, and leave that which is below the surface, or just sprouting. If one is not a disciple of Bergh, and wishes to multiply insects, let him poison the sowed corn. He can bag his game at leisure, but he would also be likely to bag less fruit and grain.

The Jasmine-like Bouvardia.
(Bouvardia jasminoides.)

The Bouvardias are among the most valued green-house plants; whether to the commerical florist who sells cut flowers, or to the amateur or gardener who wishes to have his houses gay in winter. Some of them are useful as bedding out plants, and flower freely during the summer. The colors run from white, through flesh-color and rose, to intense scarlet. Last autumn some of our florists imported from England the Bouvardia jasminoides, which is regarded as the most valuable addition to the list of winter-flowering plants that has been made for years. The engraving gives a flower cluster of the natural size. What gives it especial value is the pure white character of the flowers, which have a delicate jasmine-like fragrance. Flower dealers are aware that the demand for white flowers is three times greater than that for colored ones; and every winter-blooming plant, that produces delicate white flowers freely, is looked upon with great interest. Unlike some of the Bouvardias, the one under notice is easy of propagation. We believe that it has not yet been offered for sale, but as it is in the hands of several of our florists, it will no doubt be obtainable as soon as a good stock of it has been propagated.

THE JASMINE-LIKE BOUVARDIA.—*(Bouvardia jasminoides.)*

The Large-leaved Saxifrages.

The majority of the Saxifrages in cultivation are small alpine or sub-alpine species, that require a rock-work and shade for their successful growth. There are a few very robust, large-leaved species that flourish well in a common garden border. The one we have figured, the Thick-leaved Saxitrage (*Saxifraga crassifolia*), will serve to show the general appearance of this group. The plant forms clumps, consisting of half a dozen or more divisions like the one shown in the engraving. The leaves, which are 6 to 9 inches long, are thick and persistent through the winter. Early in April the flowers appear, beginning to open down among the leaves, but as the season advances they are lifted up by a stem about a foot high, and the, at first, compact cluster, expands. The flowers are of a lively rose-color, and last for some weeks. Nearly related to this are the Heart-leaved and Strap-leaved Saxifrages (*S. cordifolia* and *S. ligulata*), which much resemble the Thick-leaved in the flowers, but differ in the shape of the foliage. They are equally hardy with it and bloom at the same time. *S. purpurascens* is a fine species, but not hardy. The first mentioned species is a native of Siberia, and the others are from Nepâul. These Saxifrages propagate slowly by division, and unless they can be readily raised from seed they will never be very abundant. They are valuable plants on account of their great hardiness, their broad green foliage, and early flowering.

THE THICK-LEAVED SAXIFRAGA.—*(Saxifraga crassifolia.)*

Celery Culture.
BY PETER HENDERSON.

What I have previously written about growing celery comprised the main features of its culture as practised by our market gardeners in the vicinity of New York; as we are again at the season of planting, numerous inquries render it necessary to say something more upon the subject.

I will not allude to our method of raising the plants from the seed, as it is too late to do it this season; and in fact we have made no improvement on the system already described. The time of planting out in the Northern States may run from June 15th to the end of July; and in the Southern States from August 15th to the end of September. The great difficulty experienced in the Southern States is in raising the plants; for if sown in March or April, as we do here, the high temperature and dry atmosphere either kill the plants outright, or so shrivel them up that they never start to make a free growth. There is no way of obviating the difficulty, unless by getting the plants grown at the North to be sent South. But Celery plants grown at the North at the usual season, would not answer, as they would become so large that they would require to be planted out before the end of July, and in most of the Southern States, if planted then, they could not stand the long continued high temperature and dry atmosphere of August and September. For celery plants, grown at the North for Southern planting, the seed should not be sown before the end of May, which would delay their fitness to plant until August or September; this would no doubt answer well, as the genial growing weather of October, November, and December, in many parts of the South, would be well adapted to their growth. It is doubtful if this special growing of plants is likely to be done, and our friends at the South must submit to paying us for our celery already grown, just as we must submit to have the cream of our profits taken off by their early supply of spring vegetables. It is a geographical condition of culture that both sections must accept.

Celery should always be planted on the level surface of the ground; never in a trench, which is the European method, and the one which three out of four of our private gardeners yet practise here. The soil best suited, is a deep rich loam; nothing is better than a well drained meadow or bottom land; if black and peaty it will answer quite as well, but it must be free from water. Celery, though it grows in its wild state in wet ditches, is as susceptible to injury from excess of moisture as a cabbage. In new lands broken up from sod, and where the turf is well decomposed, but little manuring is

necessary for the first season, as the vegetable fibre remaining in the soil, in most cases, will be sufficient; but on old lands, continued and heavy manuring, not less than fifty (50) tons to the acre, is indispensable. This, however, we put on with our *first crop* of Beets, Onions, Cabbages, Radishes, Potatoes, or Spinach. These being marketed by the first or middle of July, the ground is at once plowed up and well harrowed down to receive the celery crop. The manure applied in spring being diffused through the soil by plowing and harrowing, answers to carry through this crop also.

The variety of celery that we still like best for this section, is the "Incomparable Dwarf;" this, when grown for market, is planted at from 2½ to 3 feet between the rows, and from 5 to 6 inches between the plants; this distance gives from 30,000 to 35,000 plants per acre. The average price in the markets of New York during the past fall and winter was 3 cts. per root at wholesale—or, for the gross receipts, fully a thousand dollars an acre. But the celery crop of 1869 was unusually short, owing to a deficiency of plants at the planting season, which, together with continued unfavorable weather in September, occasioned an unusually short crop; this caused the price to range about one-third above the average.

We now put more labor on this crop than we did a few years ago, and find it more profitable to do so. In former years only that portion required to be blanched for use in fall, was "banked up" to the top of the plant with the spade, now we find it pays us to "bank up" all, even if it is not wanted for use until March; only taking care that the "earthing," or "banking up" process, for that wanted last, is delayed as long as possible. That required for use in October is earthed up to the top of the leaves in September; that for November in October; but that for winter and spring use is not earthed to the top of the leaves until November. Thus protected by the earth, we can leave it exposed, as it stands with safety in this section, to the end of November; about that time we take it up and pack it away in the trenches; for a description of this method see *Agriculturist* for July, 1865. These operations of earthing up and placing away in the trenches, are very simple, and can be done by any common laborer after a few minutes' practice, but are not very easily described. Any of your country readers interested in the matter, who happen to be in the City of New York, in October or November, had better come over and see our mode of working. My own grounds can be reached from the office of the *Agriculturist* in less than an hour; and our whole vicinity is a series of market gardens, a view of which at the different seasons of the year would be instructive to those inexperienced in the business. Celery is yearly becoming a more and more important crop, and in most country towns, if grown as we grow it, must be highly profitable. It pays us a fair profit at 2 cts. a root. In most cities (New York excepted) it averages 6 cts. per root.

GARDEN REFUSE.—Green stuff, such as cabbage leaves, radish and beet tops, and the like, should not be allowed to dry. Let them go while fresh to the pigpen or to the compost heap. Young weeds—and old ones ought not to be found in the garden—should have the same destination. By saving all the refuse of the garden in a heap by itself, or putting it in the pigpen, a surprising accumulation of valuable compost will be found at the end of the season.

Opium Culture.

Already more space has been devoted to Opium culture than we intended to give, but our account would be incomplete did we not give our correspondent "B's" manner of collecting the product. He makes a scarifier for the purpose, and has forwarded us one from which the engraving, figure 1, is made. It consists of a light wooden handle, curved so as to fit the hand conveniently; at one end are inserted four small knives or lancets. This portion

Fig. 1.—SCARIFIER.

is curved so as to correspond with the shape of the capsule, and it slopes from below upwards, as shown in the engraving. The end of the handle is covered with a thin metal plate, in which are slits through which the knives project. This plate is attached to the handle at the sides, but is free at the ends and acts as a sort of spring when the implement is pressed against the capsule. The manner of holding the scarifier is shown in figure 2. The capsule is held firm by the finger and thumb of the left

Fig. 2.—MANNER OF HOLDING.

hand, and the scarifier applied to the lower side of the capsule and brought upward with a delicate touch, following the curve. A little practice will enable one to scarify rapidly without cutting through the walls of the capsule. The operation is performed in the afternoon; the juice when it first exudes is quite liquid, and care should be taken not to shake it off by brushing against the plants. The product is scraped off in the morning as soon as the dew is off. For this purpose a knife is used, shaped as in figure 3. The edge is smooth but not sharp. The opium from a dozen or so of capsules is removed, and then the knife is cleaned

Fig. 3.—COLLECTING KNIFE.

by transferring the accumulation to a vessel carried for receiving it. The amount gathered each day is exposed to the air to dry, and when about half dry it is added to the mass. The scarifying is repeated from two to six times, according to the size of the capsule and the yield. In India the gatherers of opium sell their crude product to the factories, where that bought of various growers is mixed and worked over and made into cakes for commerce. The foreign opium is made into various sized balls, the exterior of which is covered with poppy petals, and sometimes with the leaves of the plant. Should opium become a product of importance with us, no doubt some plan for preparing it for market will be hit upon, which will be an improvement upon those followed abroad. Dr. B., to whom we are indebted for the details given in this and previous articles, is very confident that opium can be made a paying crop if proper pains be taken, and that it would afford easy and profitable labor to women and children.

Notes from the Pines.

Several have written to ask what has become of the "Notes from the Pines." I did not, when I began these notes, engage for a regular series, but chose to put in this form the odds and ends of personal experience that could be more readily given in this way than in a regular article. They will be continued, as the doctors prescribe medicine—*pro re nata.*

Nothing gives a more home-like aspect to a house than an abundance of climbing shrubs. These are generally put up in an awkward manner. Some fasten them directly to the woodwork by means of straps of leather. This discolors the paint and is not favorable to the growth of the vines. Another way is to build trellises against the veranda. There were here some great ladder-like things, strong enough for a man to climb up by; there was more trellis than vine. These structures were taken away and galvanized iron wire substituted. I found at Patterson Brothers' hardware store some green-house screw-eyes, which are ¼-inch rods of galvanized iron with an eye at one end and a gimlet-pointed screw at the other. These screw-eyes answer admirably for holding the wire, and a support may be put up by their use, which will be both inconspicuous and serviceable.

Last summer I had a word of commendation for the Perpetual Spinach Beet. Roots which had been frequently cut from, last summer, kept admirably through the winter with a slight covering of salt hay, and in April again gave a supply of greens. This year I propose to plant some in September, for the purpose of keeping through the winter. These are not to be cut from, and will be much more vigorous in spring than partially exhausted roots.

It is curious to notice how we are influenced by external appearances. The Irishman's motto, "Niver mind the book for the cover," is a favorite one with me, but I don't live up to it. Several dealers have sent me collections of flower seeds, and at sowing time I found I had three or four papers of the same thing from as many different establishments. I did not care to sow more than one paper of each, and I found myself each time selecting the packet that was in the best paper and the most neatly printed.

A wooden hay-rake is an odd thing to use in the garden, but it is a very efficient tool. When the land has been plowed and harrowed as carefully as may be, there will be ridges and uneven portions to level, and a wooden rake does it better than a steel one. It is lighter to use, and being so broad, it gets over the surface rapidly.

In England the winter decoration of gardens is an important part of the gardener's duties, and last winter, which was so unusually favorable for such things, set me to considering if a set of plants could not be selected which would allow us to do something pretty and effective in our less favorable climate. Almost every year the ground is bare of snow for weeks at a time, when it would be cheering to look out upon a well arranged bed, in which the various shades of green were

planted in pleasing contrast. When the first considerable snow melted away, I saw upon looking across a bed which had been used as a sort of reception room for odds and ends, a strip of green so fresh and so peculiar, that I at first did not recognize it. It stood where there had been a lot of ornamental grasses, all of which, but this, had long ago been cut down by the icy sickle (don't print that icicle) of Jack Frost. This grass, *Festuca glauca*, stood up bright and fresh, as if it, on the whole, rather preferred cold weather. The leaves are stiff and wiry, make dense tufts, and have a peculiar pale bluish-green,—a tint that would form a capital contrast to almost any other shade of green. The plants came from a florist last spring in little pots, and last winter I saw it grown in another florist's green-house. It is as hardy as an oak, and a real prize for winter beds. There are some Sedums too, well suited to this purpose, as are several low growing evergreens. The *Retinispora plumosa aurea*, which friend Hoopes says is perfectly hardy, would afford a fine golden color for the winter bed. If it ever gets cheap enough to be used freely, it can be used with fine effect in contrast with the low growing evergreens with dark foliage.

Inarching the Grape-vine.

An enthusiastic amateur gives in the Horticultural Annual for 1870, an article on inarching the grape. He finds that the Clinton and others of our native species, have much more vigorous and hardy roots than the exotic grapes; and he has in his extensive vinery a collection of the choicest foreign varieties inarched upon natives. This method may be practised on out-door vines, in cases where we wish to get a feeble grower upon a strong root, or where we wish to fruit a new variety as soon as possible. In inarching, the plant that is to serve as a cion must be planted in a pot or box

Fig. 1.—INARCHING.

so as to be movable. The operation is performed in the open air in the early part of July. The vines to be operated upon being brought into convenient position, a slice from 2 to 4 inches in length is cut from stock and cion, cutting through nearly half their diameter. The slice is thickest in the center, and tapers to each end. If the branches operated on are small, no tongues are made; but if a quarter of an inch or more in diameter, the cion may be tongued from below *upwards*, and the stock from above *downwards*, and the two put together as shown in figure 2. A tie is placed above and one below

Fig. 2.

the wound, which is then rather firmly bound with a strip of oil-silk, and over this is wrapped a strip of muslin. A few vine leaves are bound on to keep off the sun. The green shoots of the vine are very brittle at the nodes, or joints, and in operating, care should be taken to avoid breaking them at these points. In about a month the union will have so far perfected that the muslin may be removed, and the oil-silk be cut by running a knife along the stock lengthwise, to allow the vine to increase in size. The oil-cloth is not removed, but the muslin is loosely replaced. At the end of six weeks all ties and bandages may be removed. Three weeks or a month after operating, the growing ends upon the stock are pinched to direct the sap into the cion, and the growth of the stock kept checked by frequent pinching, but it is not cut away above the union until the wood has ripened. At the end of six weeks the cion is cut half through below the point of junction, and before the leaves commence falling it may be severed completely. Figure 1 shows the union between the two vines perfected, and before the cion has been cut away from its own root.

What Flowers will Grow in the Shade?

BY PETER HENDERSON.

The question "What flowers will grow in the shade?" is put to me every spring by scores of city people, whose little patch which they wish to devote to flowers is so walled up by neighboring houses, that the direct rays of the sun, never touch it. But few plants will develope their flowers there, and none will do it as well as if it were lighted up by sunshine a part of the day. Fuchsias, Pansies, Forget-me-nots, Violets, Lobelias, Lily of the Valley, Phloxes, and other herbaceous plants whose native habitat is shady wood, will do best, but even these languish if denied all direct sunlight. The best effect in such situations is produced by ornamental-leaved plants, the beauty of which, is not dependent upon their flowers. Among these may be ranked the Gold and Silver Variegated leaved Geraniums, Achyranthes, Alternantheras, Begonias, Caladiums, Centaureas, Coleuses, etc., which, if planted so as to bring the various shades in contrast, produce a pleasing effect, which continues during the entire summer months, and is not surpassed by any display of flowers.

The cultivator of flowers in rooms should understand the necessity of sunlight to plants that are to flower, and endeavor to get these as close as possible to a window having an eastern or southern aspect. The higher the temperature, the more plants suffer for want of light. Many plants might remain in a temperature of 40 degrees, in a cellar for example, away from direct light, for months without material injury, while if the cellar contained a furnace keeping a temperature of 70 degrees, they would all die; such would particularly be the case with plants of a half hardy nature, such as monthly Roses, Carnations, Fuchsias, etc.

In our green-house culture of flowers, direct sunlight is an all important consideration; and a spell of sunless weather in midwinter is often a loss to us of hundreds of dollars, by preventing the development of flowers. Hence, we use every means at command to dispose the plants to secure the greatest amount of light.

The debilitating effects of want of direct light on plants are well illustrated by taking a vigorous plant in full foliage and flower, that has been growing in the direct light of our green-house benches, and placing it under the bench. If the temperature is high—say 70 degrees, in 48 hours, the sickly signs, showing want of light, will be apparent to an experienced eye; in a week its condition would be such, as to indicate sickness to the most common observer; and in a month it would most likely be dead.

In this respect, there is some analogy between plant and animal life, and it teaches us the importance of light for our own healthy development. Certain it is that our green-house and garden operatives will compare favorably with any other class of workman, as far as health is concerned. In the past twenty years, I have had an average of thirty workmen daily. During that time, but one has died, and two only, have been seriously sick, and some three or four veterans who are growing grey in the service, have never lost an hour. I doubt if it would be easy to find the same number of workmen employed *out of the sunlight*, who could show such health as these sunbrowned boys of ours.

PRESIDENT WILDER AND CHARLES DOWNING STRAWBERRIES.—There are two varieties of strawberry called President Wilder, and Charles Downing. The European President Wilder, was raised by De Jonghe, and the American one originated with Col. Wilder himself. The European Charles Downing is a seedling by De Jonghe and the American variety of that name was obtained by J. S. Downer of Kentucky. It is very unfortunate that this doubling of names should occur. According to pomological rules, the name first published with a description in a pomological work, takes the priority. This is a matter that will properly come before the committee on synonyms of the Am. Pomological Society. Those purchasing varieties with the above name, should ascertain whether they wish the American or European, and order accordingly.

Fire Hot-beds.

BY PETER HENDERSON.

In the St. Louis Journal of Agriculture for February 24th, there is an article upon "Fire Hot-beds," by E. A. Rheil, and in the Prairie Farmer Annual for 1870, Dr. E. S. Hull, of Alton, Ill., in an article on "Propagating the Grape," treats on the same subject.

The plan, if I rightly understand the gentlemen, is, in substance, to run under the soil smoke or heated air flues from the furnace, at such distances apart as will heat the space of hot-bed wanted for planting or sowing upon, or to form the base on which to rear the superstructure of green-house or frame. Both writers fail to tell in what way the superstructure of glass is to be made; they do not give the hight, and we are left to conjecture, whether they recommend a *green-house* or a *hot-bed*. If they intend a green-house, then if walking room is to be obtained inside, the bed must be too far from the glass for the health of the plants; if simply a hot-bed is intended, where access is had only by lifting the sashes outside, then all who have had experience know that it cannot be worked to advantage in the winter months. As to the economy of heat claimed for this method, I can only say that the soil around the

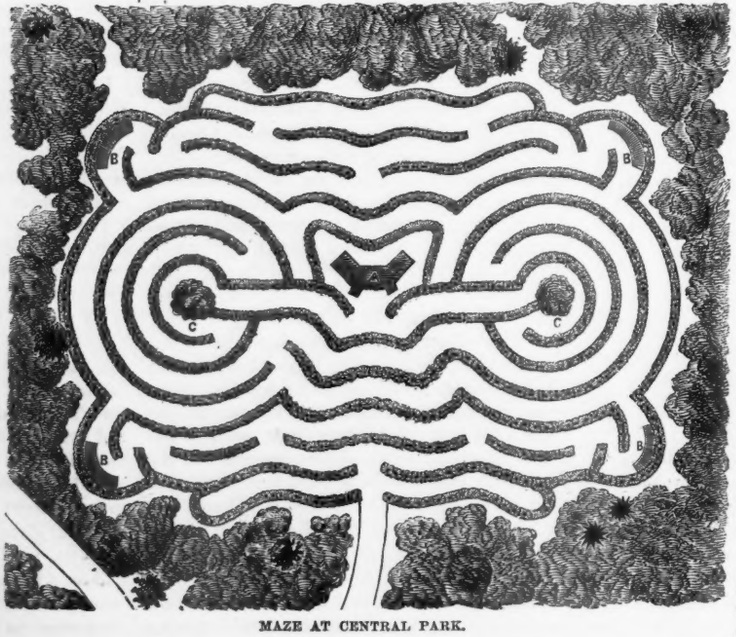
gentlemen have got hold of a practice that has been tried and abandoned many times both here and in Europe. The failure is due to the obvious fact that the soil surrounding the hot-air flues abstracts the heat *below* and *laterally*, while it is only wanted *above*, hence the heat abstracted from the flue except by the soil laying over it, is, to a great extent, lost. So well are we aware of this fact that in heating our green-houses by hot water pipes or by smoke flues, we are always careful to elevate them at least six inches above the ground, to prevent the loss of heat by the absorption of the soil below. In the past dozen years, plan after plan for artificially heating pits and green-houses have been advocated, tried and abandoned by us, just as they had been advanced and abandoned by those who had preceded us; such will be the fate of those "fire hot-beds." Those of us who have had nearly a quarter of a century's experience among the hundreds of green-house establishments in the vicinity of New York, have tried or have seen tried, the running of flues underground, to our cost and sorrow; and have long ago come to the conclusion that if a hot-bed proper is to be used at all, it must be made of some such material as horse manure, leaves, tan-bark, or refuse hops. Hot-beds for commercial purposes are rapidly being abandoned, and the popular low ridge and furrow green-house, heated by smoke flues or hot water pipes, is in use wherever the expense can be spared. The convenience and satisfaction attending the working of these green-houses, compared with the hot-bed, are manifest. We can get inside and be at work in all weathers, so that our labor is just as valuable in a stormy day as in a fair one, and the plants are always right under the eye.

The Scarlet Crassula.

While we take a pleasure in welcoming all such new plants as the Bouvardia, described in another article, we have an equal satisfaction in calling attention to old and meritorious ones—excellent things which are thrust aside to make place for new comers, and with few to say a word in their favor. One of the first green-house plants that the writer learned the name of was the Scarlet Crassula (*Crassula coccinea*)—though the old gardener did call it with a very broad Scotch accent "*Cradjúly Cockseény.*" Though for a long time a popular plant, and even now a leading one with the London flower dealers, we cannot learn that it has ever received a popular name. It is now placed by botanists in the genus *Rochea*, and its former botanical name, Crassula, may as well be adopted as the common one. It belongs to the same family with the Stone Crops (*Sedums*) and House-leeks (*Sempervivums*), and like them has fleshy leaves and a great amount of vitality. Its leaves are arranged in four rows upon the stem, which bears upon its summit a cluster of scarlet flowers of about the size of those in the engraving. It is propagated from cuttings which are laid aside to dry for a few days before they are potted—a precaution necessary with succulent plants to prevent them from decaying. The plants, when growing, need an abundant supply of water; but the pot should be so drained that none will remain stagnant about the roots. After flowering, the water should be gradually

THE SCARLET CRASSULA.—(*Rochea coccinea.*)

withheld, and the plants should have a season of rest and dryness. The Crassula is well suited to house culture, as it endures a dry atmosphere; but it is easily injured by frost. Two others belonging to the same genus, *Rochea falcata* and *R. perfoliata* are interesting green-house plants.



MAZE AT CENTRAL PARK.

The Maze at Central Park.

In the gardening of a century or two ago, the Maze or Labyrinth was considered an essential appendage to grounds laid out in the then prevailing style. The Maze is a tortuous, intricate path, bordered on each side by a hedge. If ingeniously arranged it affords an amusing puzzle to reach the center, where there is usually a shaded seat or a fine view to reward the successful visitor. In the present style of landscape gardening the Maze is considered as too artificial, and it is mainly a thing of the past. At the New York Central Park one has been constructed by the efficient gardener, Mr. I. A. Pilat, and here, where the object is to furnish as much variety and amusement as possible, it comes in appropriately enough. The hedges may be of Norway Spruce; in England the Yew is a favorite plant for the purpose. The hedges are kept about five feet high, or they may be so tall that they cannot be seen over. In the labyrinth at the Park there is a commodious rustic shelter, A, at the center; at B, are rustic seats, and at C, circular seats around shade trees. The Maze is situated east of the old Croton reservoir, not far from 79th Street.

PRUNING EVERGREENS.—We are frequently in the receipt of letters asking how and when to prune evergreens; but each writer forgets the important point,—what he wishes to prune for, or whether he is growing a forest for spars, or a low hemlock hedge. Many evergreens, if they grow as single specimens, will take on a form which no art can improve. Specimen trees will need but little pruning; if the upper limbs are disposed to overhang the lower ones they should be shortened, to give those below them a fair share of light and air. This may be done while the young growth is yet tender, if a mere cutting back is all that is required. If limbs need to be taken out, it may be done late in autumn or early in spring. Hedges in their early growth are cut in autumn after the season's wood has ripened; but when the plants have become well established, and it is desired to check the growth, they are cut back in June while the young shoots are still immature. Pruning at this time has the same dwarfing effect that pinching has upon a deciduous tree. A very little trimming may afterwards be needed in early autumn to bring the hedge into the desired shape.

SEEDS OF PERENNIALS.—One great obstacle to the cultivation of herbaceous perennial plants, is the difficulty with which the seeds of many germinate. A large proportion of them require to be sown as soon as ripe; they come up soon and make strong plants, which will bloom next year; while if kept until the following spring, they would remain a full year before they came up. Several of the Columbines behave in this manner. We notice in the seed catalogue of Mr. Ortgies, of Zurich, Switzerland, that those seeds requiring to be sown in summer are indicated. This is very useful information, which our dealers would do well to give in their catalogues also.

THE HOUSEHOLD.

(☞ *For other Household Items, see "Basket" pages.*)

An Aquarium.

Having said something about the construction of an aquarium as a household ornament and a means of home instruction, a few hints as to its management are necessary. It was stated last month that most plants that grow partially or wholly submerged would do. Every pond or deep, quiet stream will furnish several. The one shown in figure 1 is the Mermaid-weed, (*Froserpinaca,*) which is frequently used, though it is not a true aquatic. It grows in shallow water, and its submerged leaves are divided, as shown in the engraving; but later in the season the upper portion grows above the surface, and the leaves then developed are so different in shape that they would not be recognized as belonging to the same plant. Another very common plant is the Water Starwort, (*Callitriche,*) figure 2. Its floating tuft of green leaves looks very pretty, but the portion below the surface is not so pleasing. One will soon find what plants flourish best and look best. When the aquarium has been in operation for some weeks, the glass will begin to look dim, and it will be found that a green film has covered it. This green film is a growth of microscopic plants, and while it in no wise interferes with the healthy condition of the tank, it is annoying, as it obstructs the view of what is going on within. Snails are useful in keeping this growth in check, and they also consume decaying vegetable matter. It is well to have a good supply of snails, as they require very little oxygen, and are excellent house-cleaners and scavengers. They crawl along the surface of the glass with their broad foot expanded, as shown in figure 3, and keeping in motion they usually destroy or prevent the troublesome green film. If the snails do not prove efficient, the glass may be occasionally cleaned by rubbing it with a swab. There are two or three species of snails to be found in streams and ponds. They will all answer in the tank; but if either is found to destroy particular plants, it should be rejected in favor of the others. Mussels, or fresh-water clams, are useful, as they strain out much impurity from the water. We have already cautioned against introducing too many fishes. Those that are kept, as well as other animals, will require feeding about twice a week. Small shreds of raw beef are generally used, and when gold-fish are kept, small pellets of bread may be given. Whatever food is used, all unconsumed fragments should be removed, otherwise they may produce trouble by their decay. A small net attached to a wire will be found convenient to remove objects from the tank; and a glass tube long enough to reach the bottom will be useful in removing unconsumed food, etc. Close one end of the tube tightly with the finger, immerse the other end of the tube and bring it directly over the object to be taken out; remove the finger from the upper end and the water will rush into the tube, carrying with it the piece of meat or bread; close the tube again with the finger and it may be lifted out with its contents. In a properly managed aquarium the water will remain for an indefinite time without the necessity for changing; but sometimes from neglect or accident it will become impure, and must be exchanged for a fresh supply.

Fig. 1.—MERMAID-WEED.

Fig. 2. WATER STARWORT.

Fig. 3.—SNAIL.

Fig. 4.—SNAIL.

The New Baby and Its Mother.

BY FAITH ROCHESTER.

There is not much to *do* for such a wee thing. Just *let it live*, and not torment it with unnecessary fussing. It is to be supposed that some motherly woman has washed and dressed the babe, and now for a week I would not repeat the process. Let it lie and sleep as much as it likes, quiet and warm. Its head should be lightly covered at first, but gradually accustom it to sleep with its head uncovered. It is not fair to keep it inside its mother's bed in such a way that it must breathe impure air. Let the air of the room be as fresh as possible without being uncomfortably cool; and keep the room quiet and pleasant.

Away with all doses! In all ordinary cases, Nature is equal to the emergency, and all we have to do is to give her a fair chance. Pumpkin-seed tea, molasses and water—nonsense! The maternal secretion has just the purgative properties required, what little there is of it, and usually baby needs nothing more. To be sure, it cannot be called milk—that does not come until about the third day, and this is a period of some danger to the mother. About this time danger from "broken" or "bealed breast" begins. As "an ounce of prevention" of this terrible condition, let the mother be very temperate in her eating, and especially in drinking, from the child's birth until the flow of milk is fairly established. Simple gruel, plain pudding, bread and vegetables, and (not very sour) fruit are best. Meat, milk, eggs, and warm drinks, had better be let alone, for a week, at least. If the baby can depend upon its mother at all for food, there is no danger of there being too little at first; there is more danger of too much, and if this is not all drawn away, the least cold taken may produce most agonizing results. Do not mistake the swollen glands for milk, insisting upon drawing away what is not there. Be very gentle. Hard rubbing is not good. Leave the matter to baby as much as possible. If the danger seems very great, applications of camphor have a tendency to keep back the flow of milk. I don't like the idea of exposing the tender olfactories of a new-born babe to such powerful smells, and I would be very careful to wipe the tincture away with a cloth wet in warm water before nursing. If you have a good nurse it would be better, perhaps, to sweat the inflamed parts with warm water; but the danger of taking cold is so great that it is not safe to try to treat one's self. I know camphor to be an excellent thing for reducing the swelling, and I suppose it is the most common "old woman's remedy."

You thought it another old woman's notion when I advised you not to undress baby for a week—eh? No. I was astonished when my doctor gave me that advice about my first baby. I would have had it stripped and bathed daily, from the first; but common sense and *sympathy* have made me feel that there is no necessity for so much handling, and that it is really an interference with Nature's healing operations. If this healing is slow, it may be best to put off the dressing for a day or two longer. In this matter, something depends upon the band. It is cruel and unnecessary to draw it tight, but a loose band will not stay in place unless properly made—with two small gores to make it fit under the bowels. Some "new-lighty" people disbelieve in bands altogether, because calves and kittens do not wear them! But nature does more for the little brutes than she does for the babies of modern mothers. If our babies, like little kittens, needed no clothing at all, it might be safe to leave them without bands or plasters. I know one woman who used a plaster instead of a band, with success, but it seems to me more objectionable than a well-made band. Calves run no risks from hard crying or improper handling. Let me give patterns of the band and wrapper described in the *Agriculturist* for Nov. of last year. I wish now to recommend them more strongly than ever. Both garments should be made of soft flannel. Straps on the band are hardly necessary for a child less than a month old, and in ordinary cases the band may be left off at that age. If the child cries a good deal, or catches whooping cough, it is probably best to make new bands, and keep them on, fastened rather loosely, and kept in place by the straps. The flannel wrapper takes the place of the usual linen shirt and waisted petticoat, affording a more easy and comfortable covering for the whole body. The outer wrapper, or dress, may button all the way down the front, but the flannel wrapper will be warmer to open only half-way down. All the buttons used should be flat and thin. I fancy that much of the complaining made by very young babes is about their clothing, because it is too tight or too stiff, too warm or too cold, or too unequally distributed. Babies are the sweetest and cunningest playthings in the world, but oh! they are so much more than that! Their healthy development is of the first importance.

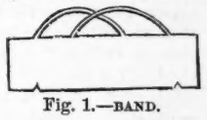


Fig. 1.—BAND.

With regard to bathing, consult cleanliness. Usually babies seem to need a daily bath, after the first few weeks, until they are several months old; and nearly all little children who enjoy a child's natural right of playing in the dirt, need daily ablutions in summer. More than one of my acquaintances have confessed to me that they believe their children have been injured by too much bathing, carried beyond the requirements of cleanliness, with an idea of invigorating the system. Those who advocate dipping young babes into tubs of cool water for the purpose of toughening their constitutions, should be good-naturedly told that "calves and kittens are not treated so!" Warm water opens the pores of the skin so as to increase the liability of taking cold; but the water used at first had better be slightly warm, and should never be so cool as to shock the little one. Gradually lower its temperature, as weeks pass, until it feels comfortably cool to your elbow. Your hand is no certain guide. Water that feels warm to the hand may be decidedly cool to the elbow.

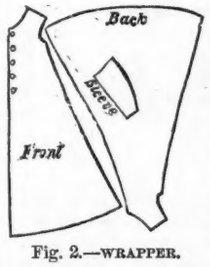


Fig. 2.—WRAPPER.

If the babe cannot have its most natural food, the best substitute is the milk of a new milch cow, weakened with warm water (soft, if possible), three parts water to one of milk, at first. Gradually increase the proportion of milk. It may be sweetened with a very little white sugar. Perhaps the next best thing is Graham gruel; make a thin, smooth paste with sifted Graham meal and cold water, and stir it into boiling water; let it boil two or three minutes, stirring it well. Add a little milk or fresh cream, if you have either. No seasoning is *necessary*, so do not put in sugar. My little ones were very fond of this; I began feeding it to them when the time of weaning drew near. Before this I did not *feed* them anything, or not before the teeth began to appear. When a tiny tooth has worked its way through, I think it is quite the fair thing to give it a crust to gnaw; but the practice of giving all kinds of food from the table seems to me very unreasonable. Good "bread and milk" is one of the best staples of a weaned baby's diet. Fresh apples, scraped with a spoon, are wholesome and very welcome to most babies.

This is the best sauce to go with the gruel (which, for children several months old, I make rather thick—so that it will hardly *pour* from the dish like a fluid), a small spoonful of gruel and then a little taste of scraped apple, or other fresh subacid fruit. Be slow and patient in feeding. The time of weaning is a matter that requires judgment—usually at the age of from nine to fourteen months. It is seldom as well for mother or child to continue nursing longer, but it may be better than to wean the baby just as the hot season is coming on. A teething baby is peculiarly liable to bowel diseases, and these are often induced or aggravated by milk that is passing or just past the point of perfect sweetness. In deciding the time for weaning a child, take into account the probabilities in the way of obtaining regular supplies of suitable food for it, and the condition of the mother's health. No double drain upon her maternal resources, physically, should be allowed. It is a common mistake to suppose that a woman must eat more than usual during the nursing period. Nature has made other provision for the emergency, and any gormandizing on the part of the mother, deranges her own stomach, vitiates her blood and the infant's supplies drawn from it, and so harms both mother and child. The mother's food should be plain and wholesome. It seems to me a sad pity that most mothers are so much addicted to the use of stimulating drinks, as tea and coffee. If the supply of food for baby is small, any other warm drink would increase its flow just as well as tea—malt or barley coffee, even better. Warm water alone, as warm as you take tea (not lukewarm—that sickens), answers every purpose. But usually no warm drink is necessary.

At first the new baby will need to take food more frequently than it will a few months later; though it will sometimes sleep five or six hours at a time, even during the day. It grows best while asleep; but *never* give soothing syrup nor any narcotics; and do not force sleep upon it when it seems to prefer wakefulness. If the room is reasonably quiet, Nature can manage the business. Comparatively few mothers consult the clock at all in reference to nursing their babes, but offer food the first thing when baby cries. This is unwise, as hunger may be the least of baby's troubles. Those who do give a rule, usually tell us to let the intervals between nursing be from two to three, or even four hours. I now feel pretty sure that there are very few babies that can go *more* than two hours, at first, between their meals—unless they sleep past the time. Some cannot go so long. It is simply outrageous to make the little things suffer from hunger, when Nature calls so imperatively for building material for their growing bones and muscles. I think more babies than one have been wronged in this way by conscientious mothers who have been taught that the intervals between nursing should never be less than three or four hours. Watch the little one; study its natural language. See how it opens its little mouth, like a young robin, and turns it this way and that, with a sweet, blind faith that the necessary nutriment will be supplied. This hint should be sufficient. Why *oblige* your little guest to scream for what it needs? Generally the baby's instinct is your best guide. Wait for its pretty hint that it is hungry and then *heed it*. If you neglect this, it can do nothing better than cry; and if you feed it whenever it makes any sign of discomfort, it will soon forget its natural language. Tennyson was not *quite* right when he wrote "And with no language but a cry," referring to "an infant crying in the night." Every true mother who has a fair chance with her baby, discovers and soon learns to interpret various little signs on its part. Most persons pay no attention to anything short of downright crying, and then are too stupid or careless to study the meaning of the cry, but offer it the breast at once to hush its crying, when, perhaps, the child is suffering from too much food already. If babies have wind colic, it is because of imperfect digestion. The food may be of poor quality, or may be given in too large quantities, or too frequently. Do what you can in the way of prevention, and for cure—turn the baby upon its stomach with your warm hand or a warm flannel under its bowels, and gently pat it on its back. See that its feet are warm. If this does not relieve it, feed it warm water with a spoon. This is the best remedy for colic, or for pain in the stomach. It is the *warmth* of the catnip tea that gives relief, so leave out the herbs altogether. If the babe is suffering from colic, it will draw up its legs and incline to double itself together.

Try to give the baby good habits of sleep. At first it will probably fall asleep without any coaxing, while lying on the bed beside its mother. Keep this up if you can. When you are tending it in your arms and it shuts its eyes or seems sleepy, lay it gently down, and do not even pat it, or with not more than one or two little pats. When night comes, have a quiet, well-ventilated room. If you keep a lamp burning, set it in the next room or where its rays will not fall directly upon the bed. If this is not your first child, you will probably put out the light. Do not have a kerosene lamp turned low, as the exhalations are not only disagreeable but poisonous. Now make up your mind to let the baby alone as much as possible during the night. If it nestles and seems to be waking, turn it over gently and it will probably take another nap. But don't think your baby can do everything your neighbor's baby can.

Not long ago I told you "A baby should be taught, on the start, to take food but once during the night, and may be weaned from night nursing altogether when quite young." This has caused me some "twinges" since, and I see no way of relief but to confess that I failed myself in the attempt to wean baby from night nursing before I weaned her entirely. I was sincere when I said it could be done. I had been told that babies three months old might be so taught, and my own little nestling used sometimes to sleep from evening twilight until morning twilight, without a meal or a request for one, when only three months old. But that was in the month of August. As the nights grew longer, it went to bed earlier and began to call for refreshment before daylight. Still, I had hopes until it was more than six months old, that I should succeed in teaching it to sleep all night without food. I would not *force* such a matter, for I believe that babies know more about these things than Doctors do. It now seems to me that a whole night of average duration is too long for a *nursling* to go without taking nourishment. The chief cause of failure with early spring chickens is said to be the long nights without food. Those who take a lantern and feed the early born, little chickens at midnight, succeed in raising them. Before insisting on bringing our little ones to any very strict rules for bathing, sleep or diet, let us consider the case of the Yankee farmer who was so eminently successful in teaching his horse to live on nothing but bean straw. Strangely enough, just as he was rejoicing over his complete success, the horse died!

There can be no square, definite rule for bringing up children, for no two require exactly the same treatment. Parents should try to become thoroughly acquainted with each one. The mother may begin the study of the new-comer at once, as she lies with that mysterious little bud of humanity so near her. For a good month, at least, she ought to rest from household labor and household cares. Say what you please about Indian women and about our grandmothers; our condition is different, and we must conform ourselves to it. I have known of so many cases of weak backs and horrible female weaknesses that dated from some overtaxing of the strength during the first month after confinement, that I think women can hardly be too careful at such a time. They should not be ambitious to get well *soon*, but to get well *thoroughly*. For three months after confinement a mother should not attempt any very hard work, though she may go about her business, moderately, after the first month. Her *first* business is the care of baby.

Dear young mother! Thank God and take courage! Motherhood has its pain and sorrow, but it has also the sweetest and purest pleasures.

How to Cook Green Peas.

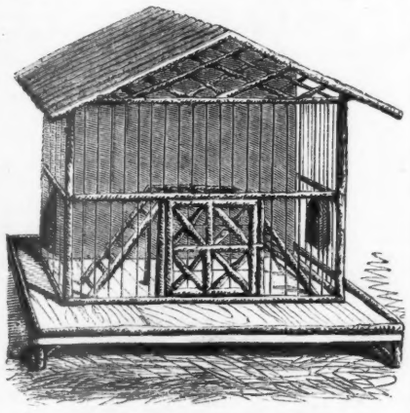
Pick the peas in the afternoon, let them stand until time to prepare next day's dinner, or, if not convenient to shell them, until the day after. Put the shelled peas into a large kettle of water with a piece of pork, and let them cook until they are boiled out of their skins.—That is how not to treat peas, and yet it is the style in which many treat one of the most delicate of vegetables. Every hour that passes between the picking and the cooking of peas is attended with a deterioration in their quality. Those who buy peas must submit to having them stale, but those who raise them have only themselves to blame if they do not enjoy them at their best. Peas should be boiled in just water enough to cover them. It should be salted and boiling when the peas are put in. Allow them to boil uncovered. The time required varies with the age of the peas, from 15 to 25 minutes. Peas that require longer boiling, or need the aid of a lump of soda to make them tender, are not to be considered as *green* peas. When the peas are done, skim them from the water or drain on a colander, and place them in a vegetable dish with a good lump of butter. The English frequently cook mint with their peas, and the French stew them with onions, butter, and parsley. These additions disguise the delicate flavor. Peas need only salt and butter; sweet cream is an acceptable substitute for butter.

Strawberry Short-cake.—We believe that the Strawberry Short-cake is an American institution. It is in its season the popular dish at the restaurants, most of them announcing it by placards, and some of them advertising the "Original Strawberry Short-cake." We have always looked upon it as an ingenious device for spoiling strawberries; but as we are probably in the minority, we consult the wishes of the majority by giving the following recipe, which comes well recommended: "To 2 teacupfuls of sour milk add 1 teaspoonful of soda; when this is dissolved, add 1 cup of butter or lard, and flour enough to make a soft dough. Roll into thin cakes large enough to fill the pan in which they are to be baked. Dust a frying-pan with flour, place in the cake and bake over the fire, turning as soon as the underside is done. Split the cakes while hot, and butter well. Lay on a plate a half of the cake, put on it a layer of well-sugared strawberries, put another half of a cake, more strawberries, and so on until there are five or six layers, and serve."....Another says: "Mix the dough with buttermilk as for short-biscuit, roll so that it will be from 1 to 2 inches thick when baked, and bake in an oven. Mash the strawberries slightly and add sugar to your taste, and water, to make juice sufficient to moisten well the cake; split the cake while hot, butter each part well, and pour the strawberries, etc., upon the under half and cover with the upper."

Lyonnaise Potatoes.—Prof. Blot gives the following: "If you have not any cold potatoes, steam or boil some, let them cool, and peel and slice them. For about a quart of potatoes, put 2 ounces of butter in a frying-pan on the fire, and when melted put as much onion as you please, either sliced or chopped, into the pan, and fry it until about half done, when add the potatoes and again 2 ounces of butter; salt, pepper, and stir and toss gently until the potatoes are all fried of a fine, light-brown color."

Canned Rhubarb.—Rhubarb in tarts and pies, or eaten as a preserve, is highly esteemed in the spring. It fills, acceptably, the gap which occurs after apples are gone, and before fresh fruits come. Rhubarb can be enjoyed in winter by putting it up in cans, the same as peaches and other fruits are preserved. As soon as strawberries and other fruits make their appearance, there are few calls made upon the rhubarb patch, and much is allowed to go to waste which might be preserved for winter use. The stalks are prepared as for making pies, —stewed tender, sufficiently sweetened, and put in jars or bottles while hot, observing the same precautions as are necessary in canning fruit.

BOYS & GIRLS' COLUMNS.

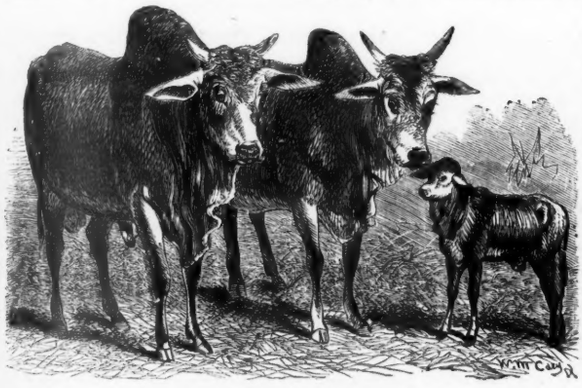


A Rustic Bird-Cage.

Building bird-cages is one of the amusements of boys who like to use carpenters' tools, and we give them a pattern of a very pretty one, which we saw some time ago. It was a cage for a parrot, but the same style may be followed in making one for smaller birds. The sticks are all cedar and left "rustic." Other wood with the bark on may be used. The roof is covered with sticks, split in halves and tacked on. The platform with the ladders seen inside will not be needed for small birds. In making a thing of this kind, start with a definite plan. Draw out the parts on a piece of coarse paper in the proper proportion, and then work to measure. Where the pieces of wood cross one another, as in the door, they are "halved together," as the carpenters say, that is, a piece is cut out of each stick half way through, and one stick is let into the other. But few tools are required—a fine saw, a good knife, and a gimlet for boring. Try and make straight lines and square corners, and endeavor to learn something even in building a bird-house.

The Zebu or Brahmin Bull.

Some cousins came on a visit, and I did as everybody in New York does with their country friends, took them to Central Park. City people go there to see the trees, the rocks, and the grass; but you boys and girls who live in the country see so much of all these things every day, that you like to go to a city, just for a change. Then you will wonder why I took my country friends to the Park if they were to see only such things as they left at home. I didn't say that trees, rocks, water, and grass were all that there was at the Park. No, indeed; there are such roads and bridges as you never saw before; and there are statues and fountains; but above all, there are the animals! There is a whole menagerie, from elephants to sheep. "Sheep are no curiosity, you can see a plenty without going to the Park."....So thought my cousins, but when they saw the flock of pure Southdowns, and the Cotswolds, I noticed they wanted to take a long look at them. As we came to the pens where the gentler animals are kept, we heard one visitor ask another, "An



THE ZEBU OR BRAHMIN CATTLE.

what is that wid the hump to his back?"—"Oh, that's a dhrummydhary, shure,"—said another. I looked for the dromedary, but saw only a couple of the oddest little cattle—a Zebu, or Brahmin Bull and a cow. These are much smaller than common cattle. The best way to describe these animals is to give a drawing of them. You will notice their hanging ears, their great dew-laps, and the curious hump on the shoulders. This hump is fatty, and is said to be delicious eating. They have a different voice from common cattle, and make a sort of grunting sound. These animals are natives of India—cousin Philip, who is always trying to be funny, said he thought they had a very *Indi-gured* look. Indeed, they have a strange expression, and look as if they would like to be taken back to India where they are regarded as sacred animals, and stand in no fear of the butcher; though the Brahmins do not hold them so sacred as to allow them to live in idleness, but they make them work, and it is said that when harnessed to a carriage they will travel thirty miles a day. My cousins were more pleased with the elephants; but these cattle were to me the most interesting things at the Park. I had read about their pictures having been found in Egypt, and that they had been kept as domestic animals over 2,000 years B. C. I had long wanted to see one of these sacred Bulls, and it was very satisfactory to come upon it unexpectedly.

WILL WARREN.

Chinese Kite Flying.

BY "CARLETON."

If there is an American boy or girl that does not love to play, I do not care particularly about making their acquaintance, but the *American Agriculturist* has no such dull, mopish, stupid readers. I dare say that there isn't one of the young folks who watch for its coming every month that does not love to play almost as well as they love to work! Work and play go well together. Only it is better to do the working before we do the playing. But the young folks in America are not the only people in the world who love to play. A few months ago, when I was in China, I found the old folks were as boyish as any of us. We should think it rather small business for our fathers and grandfathers to spend a whole day in flying kites, though Dr. Franklin, you know, did it. The people of Philadelphia, who saw that grown up man wearing a three-cornered cocked hat, going out to fly a kite in a thunder storm, thought he was crazy, but we know what has come of his craziness—lightning-rods, telegraphs, and a great deal of the science of electricity.

In September—the Chinese set aside one day to kite flying, and all hands engage in it. They say that a fortune teller once told a man that on such a day all of his cattle would die, and the farmer not wishing to see them struck dead, went out upon the hills and flew his kite either to drown his sorrow or to propitiate the kind feelings of the good spirit in the heavens who had the care of his cattle. Although he kept his kite up all day, his cattle died; at least so runs the story. And now whenever the day comes round, the people go out in great multitudes to fly their kites, to obtain the good-will of the spirits who have the cattle under their protection. This festival is called the "Ascending-on-High-Day," because then they send their kites up to the clouds. They beat us all out in making kites. The best one I ever had in my boyhood was small and mean in comparison with theirs. The frames of mine were covered with newspapers, while theirs are covered with red, green, yellow, or purple silk. Mine was simply a square frame, and not more than three feet high, while theirs are in the shape of spectacles, eagles, bats, owls, dragons, crocodiles, winged serpents, or fishes. They use small bamboo sticks, which are hollow, for the frame, which, therefore, is very light. Some of the serpents are fifty feet long, with wings stretching forty feet from tip to tip! I think that I hear you say—"*O, what a big one!*" Some resemble men sailing through the air. All are gaily painted and beautifully decorated. Everybody goes out to see the sight, and the hills are covered with spectators.

Imagine yourself near a town on the kite-flying day. You will see the town in the distance with a tall pagoda rising above it. The people are coming out to enjoy themselves for the day. You will be amused with the odd forms of the kite. One Chinaman has a kite shaped like an eagle. Near him will be another who is sending up a kite that looks like a vampire, which is a queer creature, having a body like a mouse—the head of an owl—and wings like an umbrella covered with India rubber—a creature, it is said, that sucks the blood out of your toes while you are asleep. I don't believe it though. When the sport of kite flying for the day is over, the Chinamen go to their homes and have a grand dinner, just as we do on Thanksgiving day or at Christmas.

The Chinese are quite as boyish in their other amusements. I know that we should all laugh until our sides ached were we to see a procession of grown up men walking through the streets on stilts! Yet that is what you may see in China. The stilts are five or six feet high, and those who walk on them are so expert that they have no fear of tumbling down. They dance and sing, straddle over men's heads, step across ditches, and take great strides as if they were long legged giants, tall enough to look into the second story windows of a house. It would be an easy matter, however, to trip them up and give them a tumble.

The boys of China have no wide-awake, jolly games. They don't know what real fun is. The old men have all the fun, which does not seem to be hardly fair. Though the fun of the old folks does not amount to much.

They have one amusement which I am sure you would like to see. They have many superstitions and believe that dragons have a great deal to do with human affairs. They must keep on the right side of the dragons, and so they have festivals in their honor. On the evening of the day on which the festival is held, the dragon makes its appearance in the streets. It has a great head. Its mouth is wide open; its eyeballs flame with fire; its body is as long and as large as that of the sea serpent, with claws like a crocodile's.

Think of walking along the street in the night and seeing such a monster coming towards you, wriggling its body over the pavement, twisting,—turning,—creeping,—crawling,—working its jaws as if to eat you up! If we did not know what it was, we should scamper into the house, bolt the door, run up stairs, or down cellar, or get behind somebody; but it is a dragon that does not eat folks. We could despatch him with an ax in a short time, or we could make an end of him by touching a candle to his tail. His ribs are not very strong—they are made of bamboo, and his skin is of paper.

It is not very difficult to get up a dragon. The Chinese take some small bamboo sticks which they make into hoops—some large and some small, the largest for the body—the smallest for the tail. Those are for the ribs

(*Continued on next page.*)

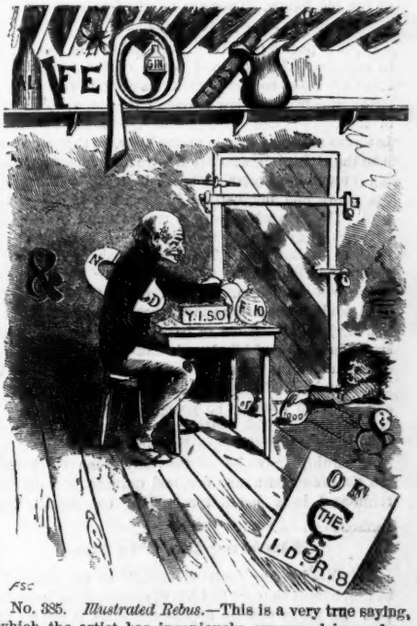
New Puzzles to be Answered.

No. 381. *Grove Puzzle.*—Plant 19 trees in a grove, the trees to stand in 9 rows, having 5 trees in each row.

No. 382. *Weight Puzzle.*—The following is sent by M. Butler. A grocer having no weights, except a 40 lb. leaden one, wishes to have this cut into four weights in such a manner that he can weigh with these four weights any number of pounds from one up to forty. What should be the weight of the different pieces?

No. 383. *Arithmetical Puzzle.*—Three men agreed to sell their eggs at the same price. The 1st had 50, the 2d 30, and the 3d 10 eggs. They each sold at the same prices, and each received the same amount of money. How did they sell and how much did they receive?

No. 384. *Illustrated Rebus.*—A maxim, which, if followed by both old and young, would save much trouble.



No. 385. *Illustrated Rebus.*—This is a very true saying, which the artist has ingeniously expressed in a rebus.

[COPYRIGHT SECURED.]

"WINNING HIS PLUMES."—DRAWN BY WM. M. CARY.—*Engraved for the American Agriculturist.*

of the old fellow. They are attached to each other by strings—just as a hoop-skirt is made.

Paper is pasted over them, and painted on the outside to represent the skin and scales of the reptile. The claws are made so that a man can walk in each one. A string runs from the jaw to one of the claws, so that one of the carriers can open or shut the monster's mouth. Lanterns are hung inside of the body, so that, as we see it in the night, it resembles a huge fiery monster, creeping through the streets. Sometimes it is a monster without claws, and not carried by men, but is drawn by a cord. The man who draws it runs with all his might as if to get away from the terrible serpent that seems just ready to swallow him. The people rush to the door to see it, and shout to the fellow to run for his life, or the snake will catch him. It is all very interesting to see, but I doubt if there is as much real enjoyment in it as there is in a good game of base ball, or a grand hurry-scurry in a game of blindman's buff—where you go over chairs, under the table, on top of the bureau, with the blindman hard after you. Ah! that is fun in earnest! and although I am not so young as I was once, there is nothing that I relish better than a romp with the boys and girls. It is better than hair dye to keep one's hair from turning gray—better than any wash for keeping the cheeks smooth and fair, and quite as good as some sermons I have heard for keeping one light-hearted.

Winning his Plumes.

A civilized young gentleman considers the time when he first adopts the coat and hat of manhood, an important one. As far as outside appearance goes, it shows that he, at least, thinks he is no longer a boy, and he expects to be treated as a young gentleman. The young Indian is not particularly troubled about hat and pantaloons, yet he has his peculiar way of showing his claim to be considered a young warrior—which, among the Indians, is the same as young gentleman. So, instead of going to the tailor or hatter for the emblems to show that he has left the state of boyhood, he puts on eagle's feathers. You think that it would be an easy enough matter for the young Indian to shoot an eagle and secure the feathers. So it would be, but that is not the way it is done. Feathers obtained in this way will not pass muster. Custom requires that the young savage shall, if he would claim a place among the "big Injuns," pluck his feathers from a living bird—in fact, win his plumes in a personal struggle with their rightful owner—the eagle. The Indian is allowed no advantage over the bird, but each must fight with the weapons nature gave them. As the eagle has great strength, sharp claws, and a formidable bill, it will be seen that the young Indian has no slight task before him. The first point is to get at the eagle; to do this, the savage finds a hollow place in the ground, or makes one, large enough to hold him. The top of the hole is covered with sticks, so that he is completely hidden. A rabbit is fastened upon the sticks which serves as a bait; when the eagle sees the rabbit, and comes swooping down after its prey, it is caught by the legs by the concealed Indian. Then comes the struggle, which the artist has shown in the above picture. It is not easy to see how, with one hand required to hold the claws, and the other to defend himself from the beak, the young warrior is to get the much coveted plumes. We may think that feathers from a dead eagle would answer just as well; but the Indians look upon it differently, and hold that the youngster who wishes to be considered a warrior, must first show his strength and courage. If a set-to with a full grown eagle will not test these, we do not know what will.

Answers to Problems and Puzzles.

No. 379. You are not to judge a man by the coat he wears.

No. 380. Liars are not to be believed out of respect to their asseverations. Lyre s R knot 2 B B-leaved-out of RE specked 2 the-eye-R AS-eve-rations.

The following have sent in correct answers: E. J. Blake, Lizzie Yordy, C. H. Hartman, A. R. Tatnall, B. Railey, Mary A. Milligan, G. W. Milligan, "E. H. F.," F. J. Myers, E. S. Wood, Jennie C. Peebles, W. C. Alston, Clara A. Peebles, John Sandles, G. Womersly, J. D. Tackenthall, D. W. Taylor, M. H. Ish, E. D. Bunyan, A. Wimbish, R. Day Jr., Mary L. Root, Alfred Hood, D. C. Wright, Mrs. C. Blanford, Grace A. Flagg, W. O. Parkwell, E. A. Jones, C. M. Chase, J. Gaunt, Annie M. Roberts, W. Terrill Jr., Theo. C. Johnson, Katie E. Gager, J. Gist, M. Ealy, G. M. Hemingway, J. P. Hammond, Isaac Hull, L. A. McCartney, J. F. Brittain, Chas. Tallmadge, W. H. Garland, "Z. R. B.," W. H. Sunderland, W. A. Robinson, E. W. Park, B. H. Truman, Geo. Shearer, J. P. Treece, W. S. Bell, E. V. Conklin, A. J. Weaver, G. Tugnot, E. Purcell, D. T. Robbins, A. L. Hemingway, E. S. Vacher, D. H. B. & E. S. Hany, Olive E. Brusie, L. Daniel, J. W. Grubt, S. Powell, N. Helmath, F. Vreeland, J. H. Heisay, "R. H. S.," "D. W.," Belle H. Lewis, J. H. Little, H. P. Lewis.

THE
MERCHANTS'
LIFE INSURANCE COMPANY
OF NEW YORK,
OFFICE, 257 BROADWAY,

ORGANIZED UNDER THE LAWS OF THE STATE OF NEW YORK.

Issues all kinds of Life and Endowment Policies on the Mutual System, free from restriction on travel and occupation, which permit residence anywhere without extra charge.

Premiums may be paid annually, semi-annually, or quarterly in cash.

All Policies are non-forfeitable, and participate in the profits of the Company.

Pamphlets containing Rates of Premium, and information on the subject of Life Insurance, may be obtained at the office of the Company, or of any of its Agents.

WILLIAM T. PHIPPS, President.

A. D. HOLLY, *Secretary.* **HENRY HILTON,** *Counsel.*
O. S. PAINE, M. D., *Medical Examiner.* **C. H. KING, M. D.,** *Assis't Med. Examiner.*

Each Agent in direct communication with the New York Office.

SMITH'S
American Organs
FOR THE
Services of Chapels and Lodges, as well as for Home Recreation.
A Thorough Comparison Invited.

An Illustrated Circular, containing full descriptions and prices, will be sent post-paid, on application.

S. D. & H. W. SMITH, Boston, Mass.

Garden and Lawn Ornaments.
Fountains, Vases, Statuary, &c. Composite Railings, Gates, Guards, &c. Union Fence for Country Residences.
Composite Iron Works Co.,
Formerly CHASE & Co.,
No. 109 Mercer St., New York.

ENOCH MORGAN'S SONS'

SAPOLIO
CLEANS, POLISHES, AND IS CHEAPER AND BETTER THAN SOAP.
Depot, 211 *Washington Street, New York.*

MAKE YOUR OWN SOAP
One Pound of Crampton's Imperial Laundry Soap will make twelve quarts of Handsome Soft Soap. Ask your Grocer for it and Try it. CRAMPTON BROTHERS, 84 Front St., New York.

THE NOVELTY KNIFE
For Ladies and Gentlemen.

Has one ordinary blade, and one new patent blade unequalled for a sewing ripper, eraser, nail trimmer, and many other uses. Highly recommended by the American Agriculturist. Is made of best steel. Price by mail, post-paid, plain handle, $1; Ivory, $1.25; Shell, $1.50; Pearl, extra finish, $1.75.

Send for sample. Agents wanted in every town.

For sale at wholesale and retail by
A. C. FITCH, Gen. Agent, 27 Chatham St., New York.

American Vinegar Generator.
New plan, just patented. For full description, &c., send stamp to A. D. STRONG, Ashtabula, Ohio.

THE RICHEST FARMING LANDS IN THE WORLD!
1,300,000 ACRES FOR SALE
TO ACTUAL SETTLERS.
NEOSHO VALLEY, KANSAS.
UNION PACIFIC RAILROAD COMPANY.
SOUTHERN BRANCH.

The Lands now offered by this Company are situated mainly within twenty miles on each side of the road, extending one hundred and seventy miles along the NEOSHO VALLEY, the richest, finest, and most inviting valley for settlement in the West.

One-third of the labor required at the East in the culture of farms will insure here double the amount of crops. For orchards, grape culture, and small fruit in general, it is unequaled.

BUILDING MATERIAL AND FENCING of every variety and in great abundance.

STOCK RAISING.—The rich native grasses of the prairies and bottoms, with the large area of unoccupied lands in connection with the dry, mild, and open winters, present unequaled advantages for the raising of cattle, sheep, and horses.

DAIRYING.—In such a country, with ranges for stock unrestricted, and pasture limitless, the production of butter and cheese must be profitable.

FRUIT GROWING is one of the *specialties*, as demonstrated by the Gold Medal awarded to the State of Kansas by the Pennsylvania State Horticultural Society for "A COLLECTION OF FRUITS UNSURPASSED FOR SIZE, BEAUTY, AND FLAVOR."

THE CLIMATE AND HEALTH of Kansas are unequaled. These, indeed, are among its chief excellencies, and are recommendations for settlement.

PRICES OF LAND.—From $2 to $8 per acre; credit of ten (10) years' time.

TERMS OF SALE.—One-tenth down at time of purchase. No payment the second year. One-tenth every year after, until completion of payments, with annual interest.

THE HEAD LAND OFFICE
is located at JUNCTION CITY. To all purchasers of lands *free tickets* from this point are given over the Road.

For further information address
ISAAC T. GOODNOW,
Land Commissioner,
Junction City, Kansas.

VALUABLE PLANTATION for sale on Eastern Shore of Virginia, 35 miles from Crisfield, the terminus of the Delaware Railroad; 1¼ miles front on Bay. Splendid fishery; oysters and wild fowl abundant. Superior land for Peaches. 800 acres. Terms accommodating. Address H. HAUPT, 119 N. 13th St., Philadelphia, Pa.

HEAD-QUARTERS
FOR
WIRE WINDOW SCREENS.
E. S. & J. TORREY,
166 FULTON ST., NEW YORK.
SEND FOR CIRCULAR.

45,000 Now in Use! GEO. A. PRINCE & CO.'S Organs and Melodeons will be delivered in any part of the United States reached by Express (where they have no Agent), free of charge, on receipt of list price. Send for price list and circulars. Address
GEORGE A. PRINCE & CO., Buffalo, N. Y.
GEORGE A. PRINCE & CO., Chicago, Ill.

MINTON'S ENCAUSTIC TILES.
For Vestibules, Halls, Hearths, Conservatories, &c.
Garnkirk Chimney Tops, Plumbers' Materials, &c. MILLER & COATES,
279 Pearl St., New York.

DRS. STRONG'S Remedial Institute,
SARATOGA SPRINGS, N. Y., for LUNG, FEMALE and CHRONIC DISEASES, is endorsed by the first names of the country. For its advantages, send for a Circular.

FARM IMPLEMENTS AND MACHINERY.

The principles of their construction and use; with simple and practical explanations of the laws of motion and force as applied on the farm. By **John J. Thomas.** With 287 illustrations. Price $1.50.

The basis of this admirable work was an essay published in 1850, in the Transactions of the N. Y. State Agricultural Society, which was enlarged, and in 1854 published by the Harpers. It has been, and remains, the only work in which the principles of Natural Philosophy, namely, the mechanical powers, and the powers of water, wind, and heat, are systematically discussed as applied to the operations of the farm. This work has now been most carefully revised by the author. It is much enlarged, and a great part has been re-written, while the illustrations, before abundant, now number two hundred and eighty-seven. There is not an agricultural writer that could be named more respected than John J. Thomas, or one whose judgment and freedom from personal bias in discussing new implements could be more implicitly relied upon.

NEW AMERICAN FARM BOOK.

Originally by **Richard L. Allen.** Revised and greatly enlarged by **Lewis F. Allen.** Price $2.50.

Allen's American Farm Book has been one of the standard farmers' hand-books for twenty years; it is still a valuable book, but not up to the times; and as its author, Mr. R. L. Allen, could not give time to its revision, this was undertaken by his brother, Hon. Lewis F. Allen, the distinguished farmer of Erie county, editor of the American Shorthorn Herd-Book. The work is greatly enlarged, and full of suggestions from the rich experience of its editor and reviser, and is called the *New* American Farm Book.

HOW CROPS GROW.

A Treatise on the Chemical Composition, structure, and Life of the Plant. With numerous illustrations and tables of analyses. By **Prof. Samuel W. Johnson,** of Yale College. Price $2.00.

This book is a guide to the knowledge of agricultural plants, their composition, their structure, and modes of development and growth; of the complex organization of plants, and the uses of the parts, the germination of seeds and the food of plants, obtained both from the air and the soil. Very full and accurate tables of analyses are given, and tables of the proportions existing between different principles, oily, starchy, or nitrogenous, in the same and different plants. The book is an invaluable one to all real students of agriculture.

HIGH FARMING WITHOUT MANURE.

Six Lectures on Agriculture, by Mr. George Ville, Professor of Vegetable Physiology, Paris. IV. vol., 108 pp. A second edition of this valuable manual, under the direction of the Massachusetts Society for promoting agriculture, has been published. Price, 35 cents.

PRACTICAL FLORICULTURE.

A guide to the successful propagation and cultivation of Florists' Plants. By **Peter Henderson,** author of "Gardening for Profit." Beautifully illustrated. Price $1.50.

Certainly the most practical and desirable work that has ever been published on this subject. We are selling them rapidly. Some no doubt will say that it exposes the "secrets" of the Trade too freely, and that it will make Gardeners and Propagators so plenty that our occupation, like Othello's, will be gone.—H. A. DREER, Seedsman, Phila., Pa.

Full to overflowing with valuable information.
FRANCIS RICHARDSON, Toronto, Canada.

Thoroughly practical, yet readable as a novel.—N. Y. Sun.

Just the work for the young Florist or Amateur, as it tells him clearly there is no such thing as failure, if its simple teachings are followed.
GALVIN & GERAGHTY, Florists, Newport, R. I.

PARSONS ON THE ROSE.

A Treatise on the Propagation, Culture, and History of the Rose. Revised and newly electrotyped. Illustrated. By **Samuel B. Parsons.** Price $1.50.

The Rose is the only flower that can be said to have a history. It is popular now and was so centuries ago. In his work upon the Rose, Mr. Parsons has gathered up the curious legends concerning the flower, and gives us an idea of the esteem in which it was held in former times. A simple garden classification has been adopted, and the leading varieties under each class enumerated and briefly described. The chapters on multiplication, cultivation, and training, are very full, and the work is altogether the most complete of any before the public.

HERBERT'S HINTS TO HORSE KEEPERS.

By the late **Henry William Herbert** (Frank Forester). Price $1.75.

A complete manual for Horsemen, embracing: How to Breed a Horse; How to Buy a Horse; How to Break a Horse; How to Use a Horse; How to Feed a Horse; How to Physic a Horse; How to Drive a Horse, etc.; and a chapter on Mules and Ponies, etc. Beautifully illustrated.

Either of the above books sent post-paid on receipt of price by

ORANGE JUDD & CO., 245 Broadway, New York.

(ALL NEW TESTIMONIALS.)

UNPARALLELED SUCCESS

OF THE

AMERICAN FRUIT-PRESERVING POWDER.

(Title Copyrighted, and Preserving Powder Patented in United States, March, 1864, and August, 1867. Also, Patented in England, France, Belgium, South America, &c., &c.)

From Prof. DARBY, Editor of the American Grocer, May 2d, 1870.

American Fruit-Preserving Powder.—It gives us pleasure when we can heartily and confidently commend any article we advertise. We certainly shall not commend any that we do not know to be good or are doubtful in regard to them.

Mr. Spear's preparations, advertised in this issue of THE AMERICAN GROCER, we are perfectly well acquainted with, and we know the materials which compose them, and that they are the best antiseptics for the preservation of food known. We have kept peaches from July to July again, in Alabama, exposed to the open air, with but a slight cover over the jar. At the end of the year the fruit was as fresh in appearance and taste as that recently taken from the tree.

The trade would do well to take an interest in the introduction of such an article as this. Besides the profit to themselves, they would find the preparation frequently of great service in protecting and preserving their own stock. Its use more largely among the people would also enable them to prepare for the market many articles now thrown away and which grocers could handle with profit.

From the New Jersey State Agricultural Society.

Waverley, September 21-25, 1869.

Messrs. Richardson & Gorgas, of Newark, exhibited fine specimens of fruit preserved by the process of Messrs. WORRALL & Co. This is comparatively a new method and the great care necessary in canning fruits to secure them against loss has caused all new processes to be looked upon with suspicion. The committee, however, would say in justice to the inventor, that all their doubts have been removed, and the trial of a year has proved that the method used by Messrs. WORRALL & Co. stands superior to all others. No sealing or soldering is required; ordinary jars, cans or other vessels with loose covers can be used, and fruits added as frequently as may be desired, by a few minutes' attention. A proper appreciation of this process would save large quantities of valuable fruits that are now permitted to be wasted or used for the most ordinary purposes. The committee most heartily recommend a first premium for this simple yet perfect invention.

From A. J. MAXWELL, Columbus, Lowndes Co., Miss.

Gents:—I take pleasure in saying that to the limited extent I used the American Fruit-Preserving Powder, I have succeeded admirably; the fruit having the freshness and flavor of the fruit from the tree.
January 24, 1870. A. J. MAXWELL.

From WM. B. MCCLELLAN, Talladega, Talladega Co., Ala.

Gents:—I have tried your American Preserving Powder the past season, and believe it to be everything you represent it to be. Very respectfully,
December 26, 1869. WM. B. MCCLELLAN.

From B. W. HUMPHREYS, Seguin, Guadalupe Co., Texas.

Gents:—The dozen American Preserving Powder was received in September, just after the crop of fruit was gone. By cleaning the trees, we got a gallon or two of inferior peaches, and put them up in a stone jar as directed. We have recently used them, and found them at least equal to our canned fruit, many thought them better.
January 7, 1870. Your friend, B. W. HUMPHREYS.

From I. Y. ROBBINS, Lambertville, Hunterdon Co., N. J.

Gents:—I sold a quantity of the American Preserving Powder last season and also used it in my family, and can highly recommend it as being excellent for preserving fruits for any length of time without destroying the flavor of the fruit, and is decidedly cheap.
January 10, 1870. Respectfully, I. Y. ROBBINS.

From A. J. HICKERSON, Taylorsville, Plumas Co., California.

Gents:—I, with several of my neighbors, have tried your American Preserving Powder the past season, and find it equal to what you recommend as far as we have tried it.
January 31, 1870. Respectfully, A. J. HICKERSON.

From Mrs. ISABELLA M. JOHNSON, Fairview, Burlington Co., N. J.

Gents:—I have tried the American Preserving Powder, and am free to say that it is the best method I ever tried. I take pleasure in recommending it.
ISABELLA M. JOHNSON.

From Mrs. L. C. REESE, Philipsburg, N. J.

Gents:—I used your American Preserving Powder with good success in peaches and tomatoes. Mrs. L. C. REESE.

From GREEK & HYDE, Florence, Lauderdale Co., Ala.

Gents:—Having full confidence in the American Preserving Powder, we purchased two dozen packages last season. Mrs. Hyde used the Powder according to directions in putting up all her fruit; apples, pears, plums, and small fruits, also tomatoes and green corn, all of which have given the best satisfaction. Believing the Powder justly entitled to all the merits you claim for it, we shall continue to use it, and cheerfully recommend it as an article of convenience and economy.
December 22, 1869. Respectfully, GREEK & HYDE.

From Mrs. J. C. BACON, St. Johnsbury Centre, Caledonia Co., Vt.

Gents:—I had good success with the American Preserving Powder in raspberries and currants; but my blackberries moulded some. Perhaps I did not use enough of the Powder. I think it a very good article, and shall wish to try it again.
January 8, 1870. Respectfully, Mrs. J. C. BACON.

From BURKE F. STARK, Manchester, Hillsborough Co., N. H.

Gents:—I haved used your American Preserving Powder the past season in blackberry and currant jam, and in canned peaches and tomatoes, with very good results. I shall use more of it another season, and hope to dispense with air-tight jars.
January 10, 1870. Yours truly, BURKE F. STARK.

From WM. WHEELER, Portland, Maine.

Gents:—We are very much pleased with the American Preserving Powder, and would recommend it, fully believing that it will do all that is claimed for it. We shall want more of it the coming season. Yours truly,
December 29, 1869. WM. WHEELER.

From D. H. THOMSON, Layville, Worcester Co., Mass.

Gents:—I received six packages of the American Fruit-Preserving Powder last season, and distributed four packages of them among my neighbors, and it gave entire satisfaction to all. The other two packages I used myself in putting up the different kinds of fruit used in my family, and, so far as we have tried them, we are very much pleased with the result. Yours, etc.,
December 22, 1869. D. H. THOMSON.

From Mrs. EMMON HAWLEY, Bethel, Fairfield Co., Connecticut.

Gents:—I have used your American Preserving Powder the past season, and am very much pleased with it, as are also others who have tried it in this vicinity.
December 21, 1869. Respectfully, Mrs. EMMON HAWLEY.

From AMERICAN AGRICULTURIST, July, 1869.

American Fruit-Preserving Powder.—We have had several inquiries concerning this, and have investigated the matter. We have not used it ourselves, but propose to do so this season. Fruit that was put up last year was perfectly preserved. The powder is, of course, a chemical substance, and as far as we have been able to learn, it is nearly inert; at all events it is not as active as common salt, and in the small quantity in which it is used its presence is not likely to be noticed. If, as claimed, and we see no reason to doubt it, fruit can be preserved in large jars, without any special care to exclude the air, it will certainly be a great blessing to housekeepers.

From Mrs. J. G. WOOSTER, Addison, Steuben Co., N. Y.

Gents:—I used the American Preserving Powder the past season in canning and pickling fruit, and so far it has all kept good and perfectly satisfactory. I like it so well that I shall continue to use it. Respectfully,
January 4, 1870. Mrs. J. G. WOOSTER.

From Mrs. N. C. MCCLOSKY, Hyrer's Run, Pa.

Gents:—The American Preserving Powder has fully answered my expectations. I used it in tomatoes and apple-sauce, in large jars with paper tied over the top, and they are as nice to-day as when they were put up. I certainly think it possesses all the merits you claim for it. Very respectfully,
December 31, 1869. Mrs. N. C. MCCLOSKY.

From JACOB PALMER, Bolivar, Tuscarawas Co., Ohio.

Gents:—I used the American Preserving Powder the past season in peaches, pears, grapes, tomatoes, etc., and find it all you recommend it to be. I did not air-tight the jars, and find the fruit, etc., with perfectly natural taste. I shall not do without it hereafter.
January 24, 1870. Yours truly, JACOB PALMER.

From MCDONALD & CADWELL, Lake Port, St. Clair Co., Mich.

Gents:—We sold your American Preserving Powder last season among our customers, and would say they have given entire satisfaction. Yours truly,
December 22, 1869. MCDONALD & CADWELL.

From Mrs. W. W. COMSTOCK, Pardeeville, Columbia Co., Wis.

Gents:—I used the American Preserving Powder last season in tomatoes, and it keeps them well. They taste as fresh as when first put away. Respectfully,
January 6, 1870. Mrs. W. W. COMSTOCK.

From DAVID M. PARRY, Laurel, Franklin Co., Ind.

Gents:—I have tried your American Preserving Powder, and find it a saving of labor, trouble, and time. It is truly worthy of the highest recommendation. Yours, etc.,
December 28, 1869. DAVID M. PARRY.

From JOHN M. FOLLETT, Atkinson, Henry Co., Illinois.

Gents:—We are well pleased with your American Preserving Powder. We tried it last season as you directed for fruit and green corn, and both are just as good to-day as when they were put up. Yours truly,
December 20, 1869. JOHN M. FOLLETT.

From J. VALENTINE, Grinnell, Poweshiek Co., Iowa.

Gents:—All the fruit we put up with the American Preserving Powder last season we find now in good condition. Truly, etc.,
January 11, 1870. J. VALENTINE.

From NOAH SWACKER, Glasgow, Howard Co., Mo.

Gents:—I sold five packages of the American Preserving Powder the past season, and each party has testified that the Powder is just what you claim for it. Yours truly,
January 1, 1870. NOAH SWACKER.

From A. A. HANDY, New Berlin, Chenango Co., N. Y.

Gents:—We used the American Preserving Powder the past season upon raspberries and blackberries. We used one-third less sugar than without the Powder and simply tied paper over the jars. They are as fresh as ever now, and I do not hesitate to say that, in my opinion, it is the cheapest and best method of preserving fruit.
December 28, 1869. Respectfully, A. A. HANDY.

From E. W. SPAFFORD, Portlandville, Otsego Co., N. Y.

Gents:—Your American Fruit-Preserving Powder was used in my family last season, and proves as true all you claimed for it. We have raspberries, peaches, whortleberries, and other fruit preserved with it. The raspberries put up in June in an open jar are to-day fresh and good. Respectfully yours,
December 22, 1869. E. W. SPAFFORD.

From J. W. GILDERSLEEVE, Mattituck, Suffolk Co., N. Y.

Gents:—I sold considerable of your American Preserving Powder last season, and every package gave perfect satisfaction. Respectfully,
December 17, 1769. J. W. GILDERSLEEVE.

From H. NOSS, New Brighton, Beaver Co., Pa.

Gents:—The Preserving Powder received of you last season has given general satisfaction. I gave my neighbors some of it, and they are all delighted, and will use it hereafter. We tried it on green corn, and are surprised to find it in perfect preservation; and tomatoes are much better than many we had in air-tight cans. I found it would keep milk sweet three days in summer season in our pantry, whilst milk without it would sour during one night. I am satisfied it will do all you claim for it. Respectfully,
December 25, 1869. H. NOSS.

From W. M. GATCH, Goshen, Clermont Co., Ohio.

Gents:—I introduced and sold your Preserving Powder here last fall, and so far as heard from it has given satisfaction, and I think I can do well with it next season.
January 4, 1870. Yours, etc., W. M. GATCH.

From JAMES WILLIAMS, Flint, Genesee Co., Mich.

Gents:—My folks are highly pleased with your American Preserving Powder. We used it on most all kinds of fruit, and they are all now in a perfect state of preservation.
December 31, 1869. Yours, etc., JAMES WILLIAMS.

From S. CORNWELL & Co., Weyauwego, Waupacca Co., Wis.

Gents:—We want the agency for this place for your American Preserving Powder. We find the Powder is all right, and gives good satisfaction. We will get you certificates if you want them. Respectfully,
January 18, 1870. S. CORNWELL & Co.

From JAMES S. ODELL, Plainfield, Hendricks Co., Ind.

Gents:—We used the American Preserving Powder last season in my family, and sold one dozen packages, and, so far as I have learned, it gave general satisfaction.
December 22, 1869. Respectfully, JAMES S. ODELL.

Absolute Agencies for a Town, County, or State, given to reliable and enterprising parties upon receipt of an order for a few dozen of the Powder to each County. Send for Manual containing terms. A responsible Agent wanted for all the Pacific Coast; also, for Canada; also, for England, France, and other foreign countries, which offer a large fortune to competent parties.

For Particulars, Testimonials, &c., see Agriculturist for July, 1869, and May, 1870, or send 10 cents for a Manual of 56 pages, containing full particulars and directions for preserving Fruits, &c., to

L. P. WORRALL & CO., Proprietors, 153 Chambers St., New York.

REMOVAL.

In consequence of our rapidly increasing business, and want of room in our present locality, we are compelled to seek more extensive accommodations, and are happy to announce to our friends and patrons that we have leased the large and beautiful Stores,

Nos. 23 Park Place and 20 Murray Street,

a few doors west of Broadway, opposite the new Post-office Building, which are now being fitted up in a most convenient manner, to accommodate the various branches of our business, and will be ready for our occupation about the **1st of June.**

In connection with our Trade in Seeds, and Requisites for the Farm and Garden, we propose to establish a Perpetual Exhibition of the various Products of the Soil, and would inform all interested in the cultivation of

Fruits, Flowers, Plants, Vegetables,
OR GRAIN OF ANY KIND,

who have choice specimens that they wish to exhibit, that they will here have an opportunity of so doing free of charge.

Strangers visiting the City are invited to call at our establishment, whether purchasers or not, as we intend to make our **EXHIBITION TABLES** one of the attractions of the Metropolis.

A Prize Exhibition of Strawberries will be held about the middle of June. Schedules of Prizes can be had upon application.

We take the present opportunity to thank our many friends and patrons, both old and new, for their liberal patronage since our removal to this City, and hope to be favored with a continuance of the same.

B. K. BLISS & SON.

New Sweet Potato.

Southern Queen.

A year's trial, of this superior variety introduced by us last season, confirms all that we then claimed for it.

Dr. Thurber, Editor of the *American Agriculturist*, thus speaks of it in the Horticultural Annual for 1870: "The root is very large, longer than the Nansemond, of a very light color, and is said to keep remarkably well. The vine is a vigorous grower, and the leaves larger and darker colored than the Nansemond. From a single trial of this potato we are inclined to place a high estimate upon its productiveness and good quality."

We offer for sale a limited number of plants at $2.00 per 100; $8.00 per 500; $15.00 per 1,000. No orders will be accepted for less than 100.

Nansemond Sweet.

Plants 75 cents per 100; $3.00 per 500; $5.00 per 1,000. *Sent by mail at 10 cents per hundred additional.*

Cash must accompany the order. Address

B. K. BLISS & SON,
P. O. Box No. 5,712, New York.

Sweet Potato Plants.

The subscribers have for sale slips of the *Nansemond Sweet Potato*, the best and earliest in cultivation. Price $1 per thousand. For 500 plants, $2.50.

C. G. CRANE & CO., 449 Broad St., Newark, N. J.

Cabbage Plants.

Flat Dutch, Late Drumhead, Bergen Drumhead, Winningstadt, Savoy, Stone Mason, Red Dutch, 40c. per 100; $3 per 1,000; $22 per 10,000. Marblehead Mammoth, Schweinfurth, Quintal, Fottler's Improved Brunswick, 50c. per 100; $4 per 1,000; $25 per 10,000. Send for circular.

EDWARD BURGESS, Poughkeepsie, N. Y.

EXCELSIOR TURNIP, a new variety from imported seed, greatly improved and enlarged. I offer it as the sweetest, best, and most profitable—yellow, very large, and solid. Stock of seed is limited. 50 cts. per oz.; 20 cts. package by mail. Nansemond Sweet Potato Plants, by mail, 65 cts. per 100. By Express, $4 per 1,000.

A. R. NORTON, Selden, Long Island, N. Y.

Superior Dutch Bulbs.

RICHARD LAUER, 52 Cedar St., New York, Importer. Sole Agent for the U. S. of the celebrated nurserymen Messrs. L. VAN WAVEREN & Co., Holland, whose superior products are unsurpassed, are now prepared to receive special orders from responsible parties. All orders for prime selected Bulbs must be sent in to me before the 15th of June. Price-current with Catalogue of my Fall Importation forwarded upon application. Post Office Box 1,083.

MEXICAN EVERBEARING STRAWBERRY. A hardy, vigorous plant, bearing fruit from early June until the frosts of winter. Of good size and fine flavor. No garden should be without them. Orders addressed to J. P. WHITING & CO., Detroit, Mich., or to CLARK & HITCHCOCK, Buffalo, N. Y., will receive prompt attention.

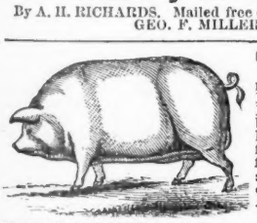
SEND FOR CIRCULAR.

PRICE OF PLANTS, $3.00 per Dozen.

The Cranberry and its Culture.

By A. H. RICHARDS. Mailed free on receipt of 25 cts.

GEO. F. MILLER, Hammonton, N. J.



THE BOAR that took the First Premium at the Ohio State Fair (1869), was an Ohio Impr'd Chester, bred by L. B. SILVER, Salem, O. Send stamp for a description of this famous breed of swine, and a great variety of other Thorough-bred Animals and Fowls.

Eggs shipped with a new method of packing. *Safe arrival guaranteed.*

Premium Chester White Pigs.

Warranted as pure bred stock as can be obtained in Chester Co., Pa. Bred and for sale by

JAMES YOUNG, Jr. & CO., Marshallton, Pa.

Send for Circular and Price List.

CLIFTON STUD FARM. SEASON 1870.

WARMINSTER (IMPORTED), *Thorough-bred Mares*, $100
Half Bred or Native Mares, 50
HAMPTON COURT (IMPORTED), *on same terms.*
GLENNEVIS (IMPORTED), *Thorough-bred Mares*,..... 50
Native Mares,..... 25

The stock of WARMINSTER and HAMPTON COURT can be seen at the above address, and are unsurpassed in appearance. Warminster promises to become a second Messenger, as his stock out of Trotting mares are very promising and highly valued.

The above horses will be sent to any of the neighboring Counties after 15th of May where not less than twelve (12) mares will be guaranteed. For pedigrees in full, and further particulars, address

R. W. CAMERON, New York City.

Hooper's Dog and Gun..... ..... .30

"A Few Loose Chapters on Shooting," with some Anecdotes and Incidents, Notes on Guns, Choosing and Training Dogs; about Game, etc. By J. J. HOOPER, Montgomery, Ala. Neat paper covers; 12mo, 105 pp.

Sent Post-paid. ORANGE JUDD & Co., 245 Broadway, N. Y.

ALDERNEYS (Jerseys) for sale.—Solid colors, good size, fine milkers. Address G. W. FARLEE, 40 Wall St., New York, or Cresskill, N. J.

THOROUGH-BRED ALDERNEY COWS and Calves for sale. Address JOSEPH WHITEHEAD, Trenton, N. J.

IMPROVED CHESHIRE HOGS.—We have the entire stock of breeding swine of this celebrated breed, formerly owned by A. C. Clark of Henderson, N. Y., and subsequently by Clark & McLean. Our references are the Transactions of the New York State Agricultural Society for the last ten years.

Send for Circulars. Address

CLARK & GREEN, at Belleville, Jefferson Co., N. Y.

PURE-BRED CHESTER WHITE Pigs, Sheep, Poultry, Pigeons, Rabbits, &c., bred and shipped by J. W. & M. IRWIN, Penningtonville, Chester Co., Penn. We also furnish eggs for hatching.

SEND FOR ILLUSTRATED CIRCULAR.

Premium Chester White Pigs.

Bred and for sale by GEO. B. HICKMAN, West Chester, Chester Co., Pa. ☞ Send for Circular and Price List.

CHESTER WHITE PIGS, bred with care, and that have given general satisfaction to the farmers, for sale by G. W. FARLEE, Cresskill, N. J.

Cotswold Lambs, 3 months old, $10 each; Chester Pigs, six weeks, $10 a piece; Blooded Calves, American Deer, Angora Goats and Fancy Poultry—all thorough-bred—for sale by N. GUILBERT, Gwynedd, Pa.

THE WESTERN RESERVE POULTRY BREEDERS' ASSOCIATION will sell choice Brahma Fowls raised from their own importation at $5 per pair. They will also sell Houdan and Crevecœur Eggs from their stock imported last season from the Jardin d'Acclimatation, Bois de Bologne, Paris, France.

Address J. H. PETERSON, Prest.
Akron, O. T. A. NOBLE, Sec'y.

Eggs for Hatching.

Light Asiatic Brahmas, cocks weigh 12 lbs., eggs $1.50 per doz., 4 doz. for $5. Houdans, imported stock, $4, doz. Dark Brahmas, Buff Cochins, imported, $5, doz. Silver-spangled Hamburg, Grey Dorking, $2.50, doz. June and July is a favorable time to hatch chickens. Send for Catalogue.

W. S. CARPENTER, Rye, Westchester Co., N. Y.

Houdan and Gray Dorking Fowls.

Eggs from the above for sale. Houdan, very fine and fully up to standard, $5 per doz. Gray Dorking (from stock of Jas. C. Cooper, of Limerick, Ireland), extra large and handsome, $3 per doz., carefully packed and delivered to Express upon receipt of price. Address C. D. VALENTINE, Fordham, Westchester Co., N. Y.

THE POULTRY BULLETIN.

Published monthly by the New York State Poultry Society. The only journal devoted exclusively to the interests of POULTRY BREEDERS, Fanciers of all kinds of Pet Stock, PIGEONS, SINGING BIRDS, FISH, RABBITS, PONIES, ETC. The first and second numbers are full of information. *Interesting and valuable for everybody.*

$1 a year. **10** cts. a number. Specimen numbers free, if requested, and stamp enclosed. Address

P. O. Box 316, N. Y. City.

Popular Music at Popular Prices.

Brainard's Musical Albums.

Each number contains from eighteen to twenty-four pieces of choice new music.

No. 1 Contains 18 Vocal and Instrumental Pieces.
No. 2 Contains 20 Choice New Songs and Quartettes.
No. 3 Contains 24 Popular New Comic Songs.
No. 4 Contains 23 Beautiful Songs and Quartettes.
No. 5 Contains 18 Instrumental Pieces for Piano.
No. 6 Contains 20 Beautiful Sacred Quartettes.
No. 7 Contains 19 Popular Songs and Piano Pieces.
No. 8 Contains 19 Comic and Sentimental Songs.

Each number contains 48 pages, sheet-music size, neatly bound. Price only 50 cents. Copies mailed to any address on receipt of price. Catalogue of contents sent free. Other numbers will rapidly follow. Address all orders to

S. BRAINARD & SONS, Cleveland, O.

Read the advertisement SAFE! SAFE! SAFE! of VOTAW & MONTGOMERY, on the last cover page.

TIN-LINED LEAD PIPE.

THIS PIPE is lined to one-quarter its thickness with pure Block Tin; a metal closely resembling silver both in color and purity. No water, however pure, acts on it. Chemists distil water in *Tin* retorts to secure a *pure* article. Dentists use it for filling teeth. All our cooking utensils are coated with it. Fruits and vegetables are preserved in *tin* cans. Lead is never used for such purposes, owing to its poisonous quality. Why, then, use it for water-pipes, when a strong, safe, economical substitute is presented? In ordering or making inquiries for price, send bore of pipe required and head or pressure of water. Circulars and sample of pipe sent by mail free.

THE COLWELLS, SHAW & WILLARD MF'G CO.,
213 Centre St., (bet. Canal and Grand Sts.,) New York.

A Valuable New Book Just Published.

THE

AMERICAN FRUIT CULTURIST,

BY JOHN J. THOMAS,

Associate Editor of "Cultivator and Country Gentleman."

NEW EDITION.

In one handsome Post Octavo Volume of over 500 pages, illustrated by 480 accurate engravings. Price, $3.00 by mail, free of postage.

☞ This is the most thorough and complete work on the subject published in this country. It covers the whole ground of Fruit Culture—containing in a clear, practical, and systematic manner the simplest detail as well as the more difficult methods of cultivation. It seems as if nothing had escaped the attention of its experienced author.

The AMERICAN FRUIT CULTURIST is equally valuable to the professional and amateur fruit grower.

Published by WM. WOOD & CO.,
61 Walker St., New York.

FOR SALE BY BOOKSELLERS GENERALLY.

$9.95 of New Sheet Music, 35 cts.

HOWE'S MUSICAL MONTHLY No. 10 CONTAINS:

Leben Waltzes.	*Faust.*	I saw Esau kissing Kate.	
Berlin Kinder "	*Keler Bela.*	Far, Far upon the Sea.	
Merchant's "	*Gung'l.*	Rock the Cradle, John.	
10 other pieces.		9 other popular songs.	

12 Songs, usual price, 35 cts. each, $4.20. 3 sets of Waltzes, 75 cts. each, $2.25. 10 other pieces, 25 cts. each, $2.50. Extra fine paper, matched to bind with other first-class sheet music. Terms, $3.00 per annum in advance. Clubs of 7, $18.00. Single Nos. sent post-paid for 35 cts. Back Nos. supplied.

ELIAS HOWE, 103 Court St., Boston, and all Music and News-dealers.

Union Pacific R. R. Land Grant

BONDS $1,000 EACH.

Paying 7 per cent interest, running (30) years, and received at par for Company's land, for sale for $780 each.

DE HAVEN & BROTHER, Bankers, 40 South 3d St., Philadelphia, Pa.

"Honor to whom Honor is Due."

TWO GOLD MEDALS AWARDED ONE MACHINE.

Harder's Premium Railway Horse Power and Combined Thresher and Cleaner, at the Great National Trial, at Auburn, July, 1866, for "*Slow and easy movement of horses, 15 rods less than 1¼ miles per hour. Mechanical Construction of the very best kind, thorough and conscientious workmanship and material in every place, nothing slighted, excellent work, &c.,*" as shown by official Report of Judges. Threshers, Separators, Fanning Mills, Wood Saws, Seed Sowers and Planters, all of the best in Market. Catalogue with price, full information, and Judges Report of Auburn Trial sent free. Address

MINARD HARDER,
Cobleskill, Schoharie Co., N. Y.

Do you wish to obtain a perfect Piano, one that will stay in tune, and give you live-long satisfaction? The Patent Arion Piano is the purest in tone, the most powerful, the most elegantly finished, the most durable, and will stand in tune longer than any other. Write for pamphlet which we mail free, and say where you saw this notice. Address "*Arion Piano-Forte Co.*" *554 Broadway, N. Y. City.*

TERMS—(cash before insertion):

IN ENGLISH EDITION.

Ordinary Pages, **$1.50** *per line. Less than 4 lines*, **$5.** *Open Pages* (open without cutting), **$2** *per line.*

Page next to Reading Matter, last Page, and 2d and 3d Cover Pages—**$2.50** per agate line of space for each insertion.—*Last Cover Page*—**$3.00** per agate line of space.

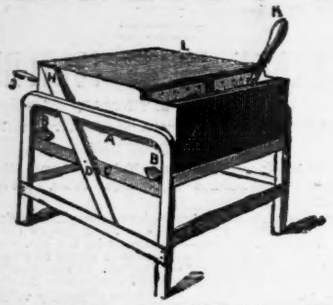
IN GERMAN EDITION.

Ordinary Pages, 25 cents per line. Less than four lines, $1.00 for each insertion.

Business Notices and Last Page, 40 cents per line for each insertion.

THE

RAILROAD CLOTHES WASHER.



NEAT, NOVEL, and **SIMPLE** in its construction; does the work with *ease* and *rapidity*. It is the only machine by which the weight of the water is secured to save a large amount of labor in washing.

NEW STYLE

Universal Clothes Wringer,

with solid white rubber rolls.

FERRY & CO.,

No. 35 CORTLANDT ST., N. Y.

Agents wanted in every town. Send for Circular.

UNIVERSAL CLOTHES WRINGER.

THE only Wringer which has the Patent Stop, to prevent the cogs from entirely separating.

The only Wringer with Rowell's improved double gear with alternate teeth in the same cog, which cannot be thrown out of gear.

"It really merits all the good that can be said of it."—*Moore's Rural New-Yorker.*

"The Universal 'the best.'"—*American Agriculturist.*

Sold by dealers generally. R. C. BROWNING,
Gen'l Ag't, 32 Cortlandt St., New York.

CARBOLIC SOAPS.

Carbolic Disinfecting Soap.

Positively destroys all insect life on Cattle, and cures **Mange, Scratches** and sores of all kinds.

Boxes of 3 oz. tablets, $3.60.
Boxes of 10 lbs., $4.00.

Sheep Dip.

This preparation is far superior to tobacco, not so disagreeable or unpleasant, much less trouble, and more permanent. Cures Scab and destroys Ticks, Lice, etc. Cans of 5 lbs., $1.25; 10 lbs., $2.25; 50 lb. kegs, $10; 200 lb. Bbl., $35.00.

Ointment.

For cure of **Footrot** and destruction of the **Screw Worm.** 1 lb. cans, 50c.; 3 lbs., $1.00; 5 lbs., $1.25.

Manufactured under license solely by

JAMES BUCHAN & CO.

Address all orders to

BOWMAN & BLEWETT, Sole Agts.,
52 Barclay St., New York.

Pamphlets furnished.

THE HANDY BOOK OF **HUSBANDRY**

BY GEORGE E. WARING, Jr.

Of Ogden Farm, Agricultural Engineer of Central Park, N. Y.; author of "Draining for Profit and for Health," &c. A Guide for Farmers, young and old, in every department of agriculture. 600 pages and 100 illustrations and maps. Agents Wanted. E. B. TREAT & CO., Publishers, 654 Broadway, N. Y. W. T. KEENER, 154 Madison St., Chicago, Ill.

Iowa and Nebraska Lands

FOR SALE.

By ACT OF CONGRESS, the U. S. Government has granted to the **BURLINGTON AND MISSOURI RIVER RAILROAD CO.,** nearly **TWO MILLION ACRES** of choice prairie and timber lands, lying in the south-half of Iowa and south-east part of Nebraska.

Through this healthy and rich region this great railway is now constructed 340 miles, and will be rapidly extended to, or near Fort Kearney, making its entire length about 500 miles on an east and west line.

These lands, mostly prairie, extend 20 miles north and 20 miles south of the railway in alternate sections of 640 acres, and are sold at low prices in one or more tracts of 40 acres each, to suit buyers, on a long credit of 10 years at 6 per cent interest. For the first two years annual interest is required in advance, and then, at the commencement of the third year, only one-ninth of the principal with annual and decreasing interest is payable, as per following example. Say, that 40 acres of land @ $10 per acre = $400, is bought on long credit of ten years, on April 1st, 1870, the payments will be due as follows:

		Interest.	Amount
April 1, 1870, pay 6 per cent interest on $400		$24 00	$24 00
April 1, 1871, pay 6 per cent interest as before		24 00	24 00
Then one-ninth of principal, as follows:			
April 1, 1872	$44 44	$21 34	$65 78
" 1, 1873	44 45	18 67	63 12
" 1, 1874	44 44	16 00	60 44
" 1, 1875	44 45	13 33	57 78
" 1, 1876	44 44	10 67	55 11
" 1, 1877	44 45	8 00	52 45
" 1, 1878	44 44	5 33	49 77
" 1, 1879	44 45	2 66	47 11
" 1, 1880	44 44	.....	44 44
	$400 00	$144 00	$544 00

If 80 acres are bought at $5 per acre, or if 160 acres are bought at $2.50 per acre, the payments will be due when and for the same amounts as on the above forty acres at $10 per acre.

If payment in full is made at date of purchase, twenty per cent deduction is allowed from the long or ten years' credit price.

Correspondence is invited, and promptly and cheerfully answered.

Apply to, or address with stamp,

GEO. S. HARRIS,
Land Commissioner B. & M. R. R. Co.,
Burlington, Iowa, or at **Plattsmouth, Nebraska.**

OUR

OUR SPECIALTIES FOR

JUNE.

Expanding Horse Hoe,
The best Steel Tooth Cultivator.
Price $15.

Clipper Horse Hay Fork,
Price $12.

Clipper Mowers and Reapers.
From $105 to $200.

Swift's Lawn Mowers,
For Hand, Pony, or Horse, from $25 to $310.

Potato Digging Plow,
Price $15.

Ralston's Sheep Shears,
Price $5.

Steel Tooth Horse Rakes,
$45.

Hay Tedders,
$90.

The Blanchard Churn,
5 sizes—from 2 gallons at $6, to 18 gallons at $10,

Together with the Largest Assortment of Implements, Seeds and Fertilizers in New York, for the Plantation, Farm, Garden or Orchard.

Special Circulars and full information sent on receipt of stamps.

R. H. Allen & Co.,

189 & 191 Water St.,

P. O. Box 376.

New York.

Empire Mutual

Life Insurance Company

OF NEW YORK.

Office, - - - - - 139 Broadway.

Success the Criterion of Excellence.

The EMPIRE has achieved a success unparalleled in the history of Life Insurance. **3349 Policies were issued in the first Twelve Months, insuring $7,813,850.00,** which is the largest initial year's business ever done by a Life Insurance Company.

AND WHY NOT?

Notice the following **Liberal Features:**

Ordinary Whole Life Policies **absolutely Non-Forfeitable** from payment of the first annual premium.

All other Policies **Non-Forfeitable** after two annual payments.

All Policies **incontestable** for usual causes, and **absolutely incontestable** after two annual premiums.

All restriction upon **travel** and **residence** removed, and **no permits** required.

One-third of all premiums loaned to the insured, if desired, and **no notes required.**

No accumulation of Interest on Deferred Premiums, and no increase of annual payment on any class of policies.

Dividends Accumulative, the surplus being returned to the Policy-holder, equitably in proportion to his contribution thereto.

The business of the Company conducted upon the Mutual Plan.

Example of the Non-Forfeiture Plan of the Empire.

Age of the Party insured, 35—Ordinary Whole-Life Policy.

One Annual Premium	Will continue the policy in force	2 years and	3 days.
Two " Premiums		4 " "	12 "
Three " "		6 " "	27 "
Four " "		8 " "	46 "
Five " "		10 " "	56 "

FIRST-CLASS AGENTS WANTED in all parts of the country. Apply at the Home Office, 139 Broadway.

OFFICERS:

G. HILTON SCRIBNER, President.
GEO. W. SMITH, Vice-President.
SIDNEY W. CROFUT, Secretary.
L. H. WATERS, Actuary.
THOS. K. MARCY, M.D., Medical Exam'r.
EVERETT CLAPP, Superintendent.

TO ORGANISTS! A Long-Felt Need Supplied.

CLARKE'S SHORT VOLUNTARIES for the PIPE, OR REED ORGAN.

Designed chiefly as Opening Voluntaries and Responses for delicate and expressive stops. EASY AND PLEASING. Selected and Arranged by WM. H. CLARKE, Author of the "*New Method for Reed Organs.*" Price in boards, $1.50. Sent post-paid on receipt of price. OLIVER DITSON & CO., Boston. CHAS. H. DITSON & CO., New York.

MACY HAS IT.

Every new thing,	**Macy** has it.
If you order anything,	**Macy** has it.
Any advantage in price,	**Macy** has it.
We buy and sell for cash—	**Macy** has it.
Every new book,	**Macy** has it.
Everything in Lace Goods,	**Macy** has it.
Hosiery, Gloves, Underwear,	**Macy** has it.
Small Wares, Trimmings, &c.	**Macy** has it.
All at popular prices—	**Macy** always has it.

Cash orders, by Mail, or Express.

R. H. MACY, 14th St. & 6th Ave., New York.

THE POQUONNOC FISH COMPANY

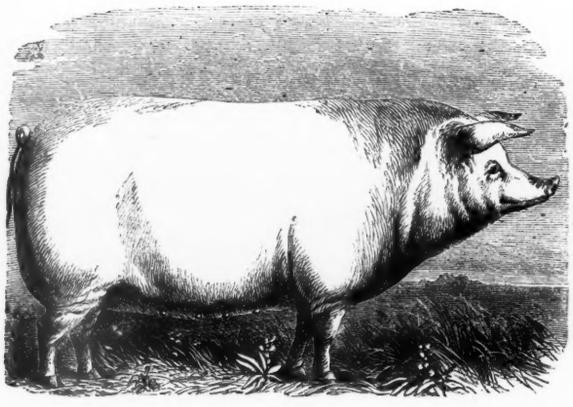
SELLS the Spawn of Trout and the young fish;
STOCKS Ponds and Streams with Black Bass;
INSTRUCTS Pupils in Fish Culture, and
EXAMINES Sites for Fish Farms, and
BUYS and sells the same, and
LAYS OUT PONDS.

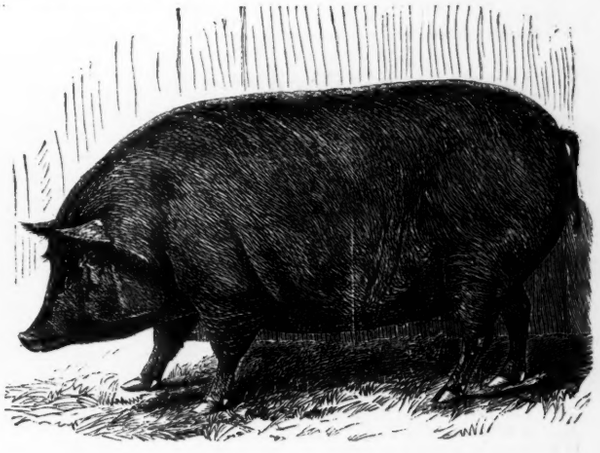
Address W. CLIFT, Mystic Bridge, Conn.

HARRIS ON THE PIG.

BREEDING, REARING, MANAGEMENT, AND IMPROVEMENT.

WITH NUMEROUS ILLUSTRATIONS.





By JOSEPH HARRIS, Moreton Farm, Rochester, N. Y.

This is the only American treatise upon the breeding, rearing, and management of swine, and is by one thoroughly familiar with the whole subject. The points of the various English and American breeds are thoroughly discussed, and the great advantage of using thorough-bred males clearly shown. The work is equally valuable to the farmer who keeps but a few pigs, and to the breeder on an extensive scale.

CONTENTS:

Chapter I.—Introductory.
Chapter II.—Breeds of Pigs.
Chapter III.—The Form of a Good Pig.
Chapter IV.—Desirable Qualities in a Pig.
Chapter V.—Large vs. Small Breeds and Crosses.
Chapter VI.—Value of a Thorough-bred Pig.
Chapter VII.—Good Pigs Need Good Care.
Chapter VIII.—The Origin and Improvement of our Domestic Pigs.
Chapter IX.—Improvement of English Breeds of Pigs.
Chapter X.—The Modern Breeds of English Pigs.
Chapter XI.—Breeds of Pigs in the United States.
Chapter XII.—Experiments in Pig Feeding.
Chapter XIII.—Lawes and Gilbert's Experiments in Pig Feeding.
Chapter XIV.—Sugar as Food for Pigs.
Chapter XV.—The Value of Pig Manure.
Chapter XVI.—Piggeries and Pig Pens.
Chapter XVII.—Swill Barrels, Pig Troughs, etc.
Chapter XVIII.—Management of Pigs.
Chapter XIX.—English Experience in Pig Feeding.
Chapter XX.—Live and Dead Weight of Pigs.
Chapter XXI.—Breeding and Rearing Pigs.
Chapter XXII.—Management of Thorough-bred Pigs.
Chapter XXIII.—Profit of Raising Thorough-bred Pigs.
Chapter XXIV.—Cooking Food for Pigs.
Chapter XXV.—Summary.
Chapter XXVI.—Appendix.

Price, Post-paid, $1.50.

HOW CROPS FEED.

A TREATISE ON THE ATMOSPHERE AND THE SOIL AS RELATED TO THE NUTRITION OF AGRICULTURAL PLANTS.

WITH ILLUSTRATIONS.

By SAMUEL W. JOHNSON, M. A.,

Professor of Analytical and Agricultural Chemistry in the Sheffield Scientific School of Yale College; Chemist to the Connecticut State Agricultural Society; Member of the National Academy of Sciences.

The work entitled "How Crops Grow," has been received with very great favor, not only in America, but in Europe. It has been republished in England under the joint Editorship of Professors Church and Dyer, of the Royal Agricultural College, at Cirencester, and a translation into German is soon to appear, at the instigation of Professor von Liebig. The Author, therefore, puts forth this volume—the companion and complement to the former—with the hope that it also will be welcomed by those who appreciate the scientific aspects of Agriculture, and are persuaded that a true Theory is the surest guide to a successful Practice.

CONTENTS.

DIVISION I.

The Atmosphere as Related to Vegetation.

CHAPTER I.—Atmospheric Air as Food of Plants.

Chemical Composition of the Atmosphere. Relations of Oxygen Gas, Nitrogen Gas, Atmospheric Water, Carbonic Acid Gas, and Atmospheric Ammonia to Vegetable Nutrition. Ozone. Compounds of Nitrogen and Oxygen in the Atmosphere. Other Ingredients of the Atmosphere. Recapitulation of the Atmospheric Supplies of Food to Crops. Assimilation of Atmospheric Food. Tabular View of the Relations of the Atmospheric Ingredients to the Life of Plants.

CHAPTER II.—The Atmosphere as Physically Related to Vegetation.

Manner of Absorption of Gaseous Food by Plants.

DIVISION II.

The Soil as Related to Vegetable Production.

CHAPTER I.—Introductory.

CHAPTER II.—Origin and Formation of Soils.

Chemical and Mineralogical Elements of Rocks. Kinds and Characters of Rocks. Conversion of Rocks into Soil. Incorporation of Organic Matter with the Soil.

CHAPTER III.—Kinds of Soils, their Definition and Classification.

Distinctions of Soils based upon the Mode of their Formation or Deposition; and upon Obvious or External Characters.

CHAPTER IV.—Physical Characters of the Soil.

Weight of Soils. State of Division. Absorption of Vapor of Water. Condensation of Gases. Power of Removing of Solid Matters from Solution. Permeability to Liquid Water. Imbibition. Capillary Power. Changes of Bulk by Drying and Frost. Relations to Heat.

CHAPTER V.—The Soil as a Source of Food to Crops: Ingredients whose Elements are of Atmospheric Origin.

The Free Water of the Soil in its Relations to Vegetable Nutrition. The Air of the Soil. Non-nitrogenous Organic Matters. Humus. The Ammonia of the Soil. Nitric Acid (Nitrates) of the Soil. Nitrogenous Organic Matters of the Soil. Available Nitrogen. Decay of Organic Matters. Nitrogenous Principles of Urine. Nutritive Value of Ammonia Salts and Nitrates.

CHAPTER VI.—The Soil as a Source of Food to Crops: Ingredients whose Elements are Derived from Rocks.

General View of the Constitution of the Soil as Related to Vegetable Nutrition. Aqueous Solution of the Soil. Solution of the Soil in Strong Acids. Portion of Soil Insoluble in Acids. Reactions by which the Solubility of the Elements of the Soil is altered. Solvent Effects of Various Substances. Absorptive and Fixing Power of Soils. Review and Conclusion.

Price, Post-paid, $2.00.

ORANGE JUDD & COMPANY, 245 Broadway, New York.

PURITY AND HEALTH.

CARBOLIC SOAPS

AND

Saponaceous Compounds

OF

Carbolic and Cresylic Acids.

Disinfectant, Insect Destroyer, Preventive of Fungus, etc.

Carbolic Acid has been known by chemists for many years, but it is only recently that it has been thoroughly investigated by them and its peculiar qualities in the departments of hygiene and medicine recognized. Enlightened physicians everywhere to-day employ it as the best disinfectant known; as an azymotic, that is, fatal to all low forms of animal and vegetable life; and an antiseptic, that is, opposed to decay or putrefaction. While the purer forms of Carbolic Acid are preferably employed for the toilet, the Laundry, and the medicinal wants of man, the Impure Carbolic Acid, containing a mixture of Cresylic Acid, has been found more effectual in destroying insect life, and better for use on animals, since it is of a more astringent nature.

Frequent mention has been made in the columns of the *American Agriculturist* of Carbolic Compounds, as being valuable for destroying insects on animals and plants, and for other purposes. For some months past we have been investigating the merits of these preparations with the following results.

Carbolic Acid is extracted from gas-tar, to which it gives the peculiar odor perceived on burning the tar. In its ordinary form it could not be readily applied, and hence was not available for common use. About three years since, Messrs. JAMES BUCHAN & CO., of New York, well known as extensive manufacturers of family soaps, conceived the idea of combining this acid in saponaceous compounds. By long and careful experimenting, they succeeded in producing soaps in various forms, possessing the active properties of this acid, and thus bringing it within the reach of all classes. These compounds have been patented.

We have watched with great interest the results of various applications of these compounds, knowing that if successful, they would be of incalculable benefit to the community. By tests made under our own supervision, and the reports of careful observers, we believe it to be established that these Cresylic Compounds are

1st. Complete Disinfectants.—They not only remove all noxious odors from sinks, privies, stables, etc., but will destroy all infection in clothing, rooms, etc., washed with their solution. Thus, contagion from Small Pox, Typhus Fever, Cholera, and other diseases, may be effectually prevented. They are used in the New York and other Hospitals for these purposes.

2d. Insect Destroyers.—An animal washed with Carbolic Soap will be entirely freed from all vermin. It will destroy ticks on sheep, fleas on dogs, lice on cattle or poultry roaches, ants, bed-bugs, etc., in rooms. It repels flies from animals, and thus is especially useful in case of wounds or sores from any cause.

3d. Preventive of Fungus Growth.—On this point we ask for further experiment. We feel confident this soap, properly applied, will prevent smut in wheat, mildew on vines, and similar parasitic growth, and trust that experimenters will furnish the result of their trials.

4th. Cleaning Sores, etc.—For washing ulcers and other foul sores, and preventing gangrene in wounds, etc., Carbolic Soap is, we believe, unequaled. We know also that it has been successful wherever used, for footrot in sheep, and mange, itch, ring-worm, and other skin diseases.

From numerous RECOMMENDATIONS of Cresylic Compounds, the following are selected as being specially valuable.

FIVE POINTS HOUSE OF INDUSTRY, 155 Worth St.
New York, Nov. 15, 1867.

MESSRS. BUCHAN & CO.—*Gentlemen*—Some months since we purchased a large building which had been used as a tenement establishment for thirteen years, and was occupied by some ninety families. We tore away partitions, turning between three and four hundred rooms into less than one hundred. We found the walls and floors perfectly infested with vermin. We used freely, in cleansing, the CARBOLIC SOAPS, manufactured by your firm, and with the very best results, as the bugs, etc., have entirely disappeared. We propose to continue its use in cleaning our dormitories, hoping then to keep clear of a plague so common to all housekeepers in cities. S. B. HALLIDAY, Supt.

CORPUS CHRISTI, Texas, March 15, 1868.

Messrs. JAMES BUCHAN & CO.—*Gentlemen:* Your Sheep Dip is wonderful in its effects. I have dipped 2,150 head with nine months' fleeces on their backs. It is now three weeks since, and no scratching as yet. Your Dip is far superior to tobacco, not so disagreeable or unpleasant, much less trouble and more permanent.

I have used it on horses when diseased with a species of mange or itch, and it has the same good effect as on sheep.
F. W. SHAEFFER.

WINDSOR LOCKS, Conn., Nov. 23, 1869.

Messrs. JAMES BUCHAN & CO.—*Gents*—I have used your SHEEP DIP for two years, and think it is the best preparation that I know of for destroying Ticks and Lice on sheep and cattle. It is far preferable to Tobacco, and should think it would be a sure cure for scab. BURDETT LOOMIS.

OFFICE BROOKLYN CITY RAILROAD COMPANY,
November 12, 1868.

I take great pleasure in recommending the CARBOLIC DISINFECTING SOAPS, manufactured by Jas. Buchan & Co., for the cure of all external diseases to which horses are subject. I tried the *Ointment* on a horse with a severe fistula on his shoulder as a first test, and with entire success. And I cannot speak in sufficiently strong terms of its healing qualities, in all cases of galls, scratches, bruises, swellings, etc. I am using the soap in all of our stables.

No person owning a horse should be without these soaps; for, in my long experience with horses, I have never found any thing to compare with them. HENRY PALMER,
"Supt. Horses Brooklyn City R. R. Co."

NEW YORK, Dec. 1, 1869.

Messrs. BOWMAN & BLEWETT.—*Gentlemen*—Having used your Carbolic Laundry Soap in our Laundry for the past two months, and finding its cleansing properties *so far superior* to any soap we have ever used, we take the very *greatest pleasure* in recommending it to every laundry and family in the country. Our goods are whiter by far, more easily and thoroughly cleansed from every stain, grease spots, etc., *and this too* with 50 per cent less soap, and our premises are kept sweet and clean by its use.
Yours respectfully, ANDRUS BROTHERS.

On the use of disinfectants, the following is the testimony of Dr. ELISHA HARRIS, Registrar of the Metropolitan Board of Health, New York City:

"THE DISINFECTING AND ANTISEPTIC POWER OF GOOD CARBOLIC ACID IS SO GREAT THAT ONE PART OF IT TO FIFTY OR ONE HUNDRED PARTS IS SUFFICIENT FOR ORDINARY PURPOSES."

Desiring that our readers should be benefited by the extended introduction of what we believe to be so valuable, we have established a general agency for the sale of these compounds, keeping them constantly on hand, and are prepared to fill orders at wholesale or retail, at the following prices.

Sheep Dip, *for Curing Scab and Destroying Insects on Sheep.*

5 lb Canisters	$1.25
10 " "	2.25
50 " Kegs	10.00
200 " Bbls	35.00

Proportions are 1 lb Dip to 5 gallons water for 5 to 10 Sheep, if they are *very large and heavily fleeced*. For ordinary sized animals, or those recently shorn, 1 lb Dip will take 8 to 10 gallons water. The solution must be graded according to the age and condition of the animal.

Plant Protector.—In solution for destroying and repelling insects from Trees or Plants.

In 1 lb. Canisters, @50 cts.; in 3 lb. Canisters, @ $1.00; larger packages same price as Sheep Dip. See above.

Cresylic Ointment, for Cure of Footrot, etc. In solution for killing Insects, etc., on stock. In 1 lb Canisters, @ 50 cts.; in 3 lb Canisters, $1; in 5 lb Canisters, $1.25.

Carbolic Disinfecting Soap.—In tablets for convenient use in washing Horses, Dogs, Pigs, etc., destroying Insects of all kinds, protecting from Flies, curative of Sores, Scratches, and Chafes of all kinds. In boxes, 3 doz. tablets, $3.60; in boxes of 1 lb bars, 10 each, $4.00.

Carbolic Laundry Soap, for the Laundry, etc.; 60 lb boxes, 14 cts. per lb. 24 lb boxes, and in 10 paper boxes containing 6 lbs. each, packed in a case, 15 cts. per lb.

Carbolic Toilet Soap, perfumed, two sizes, $2 and $4 per dozen, in boxes of 3 dozen each.

Carbolic Bath Soap, $1.50 per dozen. In boxes of 3 dozen each.

Address orders to

ORANGE JUDD & CO.,
245 Broadway, New York.

WARING'S
BOOKS FOR FARMERS.

DRAINING FOR PROFIT
AND
DRAINING FOR HEALTH.

By GEO. E. WARING, JR.,
Engineer of the Drainage of Central Park, New York.

CONTENTS.

LAND TO BE DRAINED; HOW DRAINS ACT; HOW TO MAKE DRAINS; HOW TO TAKE CARE OF DRAINS; WHAT DRAINING COSTS; WILL IT PAY? HOW TO MAKE TILES; RECLAIMING SALT MARSHES; HOUSE AND TOWN DRAINAGE.

EXTRACTS FROM NOTICES BY THE PRESS.

He (the author) describes the action of draining upon the soil, the construction of single drains and systems of drains, the cost and the profit of thorough drainage, the making of tiles, and the reclaiming of salt marshes, treats sensibly of malarial diseases, and closes with a chapter which should be widely read, on house drainage and town sewerage in their relations to the public health.
[*Portland (Me.) Press.*

Nowhere does this book merit a wider circulation than in the West. Every year adds to the thousands of dollars lost to this State from want of proper surface drainage, to say nothing of the added gain to result from a complete system of under-drainage. This book will prove an aid to any farmer who may consult it.
[*Chicago (Ill.) Republican.*

A Book that ought to be in the hands of every Farmer.
SENT POST-PAID, - - - - PRICE, $1.50.

EARTH-CLOSETS
AND
EARTH-SEWAGE.

BY GEO. E. WARING, JR. (of Ogden Farm).

INCLUDING:

THE EARTH SYSTEM (Details).
THE MANURE QUESTION.
SEWAGE AND CESS-POOL DISEASES.
THE DRY-EARTH SYSTEM FOR CITIES AND TOWNS.
THE DETAILS OF EARTH SEWAGE.
THE PHILOSOPHY OF THE EARTH SYSTEM.

With Seventeen Illustrations.

Paper Covers, Price, Post-paid, 50 cts.

ELEMENTS OF AGRICULTURE.
A BOOK FOR YOUNG FARMERS,

By GEO. E. WARING, JR.,
Formerly Agricultural Engineer of the Central Park, in New York.

CAREFULLY REVISED.

CONTENTS.

THE PLANT; THE SOIL; MANURES; MECHANICAL CULTIVATION; ANALYSIS.

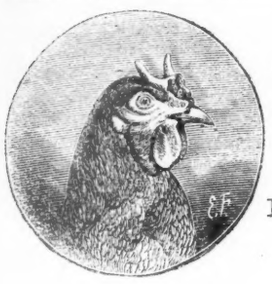
The foregoing subjects are all discussed in plain and simple language, that any farmer's boy may understand. The book is written by a successful *practical farmer*, and is full of information, good advice, and sound doctrine.

HORACE GREELEY says of it: "Though dealing with facts unfamiliar to many, there is no obscure sentence, and scarcely a hard word in the book; its 254 fair, open pages may be read in the course of two evenings and thoroughly studied in the leisure hours of a week; and we pity the man or boy, however old or young, who can find it dull reading. Hardly any one is so wise that he will not learn something of value from its perusal; no one is so ignorant or undeveloped that he cannot generally understand it; and no farmer or farmer's son can study it thoughtfully without being a better and more successful cultivator than before."

SENT POST-PAID, - - - - PRICE, $1.00.

Address

ORANGE JUDD & CO.,
245 Broadway, New York.



THE PRACTICAL
POULTRY KEEPER.

A Complete and Standard Guide to the

MANAGEMENT OF POULTRY,

FOR DOMESTIC USE, THE MARKETS, OR EXHIBITION.

BEAUTIFULLY ILLUSTRATED.

By L. WRIGHT.

CONTENTS:

SECTION I.

THE GENERAL MANAGEMENT OF DOMESTIC POULTRY WITH A VIEW TO PROFIT.

CHAPTER I.—Houses and Runs; and the appliances necessary to keeping Poultry with success.

CHAPTER II.—On the System of Operations and the Selection of Stock.

CHAPTER III.—The Feeding and General Management of adult Fowls.

CHAPTER IV.—Incubation.

CHAPTER V.—The Rearing and Fattening of Chickens.

CHAPTER VI.—Diseases of Poultry.

SECTION II.

THE BREEDING AND EXHIBITION OF PRIZE POULTRY.

CHAPTER VII.—Yards and Accommodation adapted for Breeding Prize Poultry.

CHAPTER VIII.—On the Scientific Principles of Breeding, and the effects of crossing.

CHAPTER IX.—On the Practical Selection and care of Breeding Stock, and the Rearing of Chickens for Exhibition.

CHAPTER X.—On "Condition," and the Preparation of Fowls for Exhibition; and various other matters connected with Shows.

SECTION III.

DIFFERENT BREEDS OF FOWLS; THEIR CHARACTERISTIC POINTS, WITH A COMPARISON OF THEIR MERITS AND PRINCIPAL DEFECTS.

CHAPTER XI.—Cochin Chinas or Shanghaes.

CONTENTS:

CHAPTER XII.—Brahma Pootras.

CHAPTER XIII.—Malays.

CHAPTER XIV.—Game.

CHAPTER XV.—Dorkings.

CHAPTER XVI.—Spanish.

CHAPTER XVII.—Hamburghs.

CHAPTER XVIII.—Polands.

CHAPTER XIX.—French Breeds.

CHAPTER XX.—Bantams.

CHAPTER XXI.—The "Various" Class.

SECTION IV.

TURKEYS, ORNAMENTAL POULTRY, AND WATER FOWL.

CHAPTER XXII.—Turkeys, Guinea-fowl, Pea-fowl.

CHAPTER XXIII.—Pheasants.

CHAPTER XXIV.—Water Fowl.

SECTION V.

THE HATCHING AND REARING OF CHICKENS ARTIFICIALLY.

CHAPTER XXV.—The Incubator and its Management.

CHAPTER XXVI. — Rearing Chickens Artificially.

SECTION VI.

THE BREEDING AND MANAGEMENT O POULTRY UPON A LARGE SCALE.

CHAPTER XXVII. —Separate Establishments for Rearing Poultry. Poultry on the Farm. Conclusion.

Price, Post-paid, $2.00.

ORANGE JUDD & COMPANY, 245 Broadway, New York.

TEGETMEIER'S POULTRY BOOK.

THE BREEDING AND MANAGEMENT OF POULTRY, THEIR QUALITIES AND CHARACTERISTICS.

To which is added "THE STANDARD OF EXCELLENCE IN EXHIBITION BIRDS."—Authorized by the Poultry Club.

By W. B. TEGETMEIER, F. Z. S.

English Edition, 8vo. With colored Illustrations by HARRISON WEIR, and numerous engravings on wood. **Price, Post-paid, $9.00.**

SAUNDERS' DOMESTIC POULTRY.

A PRACTICAL TREATISE ON THE

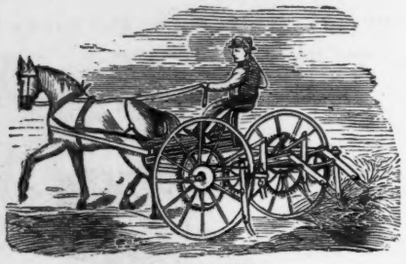
PREFERABLE BREEDS OF FARM-YARD POULTRY, THEIR HISTORY AND LEADING CHARACTERISTICS.

With complete instructions for breeding and fattening, and preparing for exhibition at Poultry Shows, etc., derived from the author's experience and observation.

By SIMON M. SAUNDERS.

FULLY ILLUSTRATED. Price, Post-paid, paper covers, 40 cents; cloth, 75 cents.

ORANGE JUDD & CO., 245 Broadway, New York.



BULLARD'S
IMPROVED HAY TEDDER.

Important Improvements! See Pamphlet!

Spreads from behind the wheels and does not run over the grass after it is spread. Wheels 4 feet high. Light draft for one horse. Its use enables the Farmer to *cut*, cure, and *store away* hay in *one day*, and adds 20 per cent to value of crop. A large farmer says: "*Its use* in a *single season* will *more than* pay *its cost*. The enterprising Farmer *will not, cannot* do *without it*; the longer he puts off buying, the poorer he will be." It is the most popular Harvesting Machine ever offered.

Union Mower and Reaper

Is the height of perfection. Light, easy draft, simple in construction, neat and accurate in workmanship, convenient to operate, perfectly adapted to cut on salt marsh, uneven hill-side or lawn. Those who have used it pronounce it the **Most Durable Machine Made.**

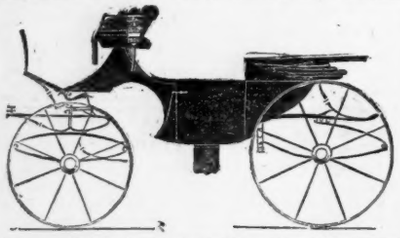
Eagle Sulky Hay Rake.

Light, simple, durable, and cheap.

Agents wanted to sell any or all of the above. Liberal inducements offered to enterprising men. Illustrated pamphlets and terms to Agents mailed upon application.

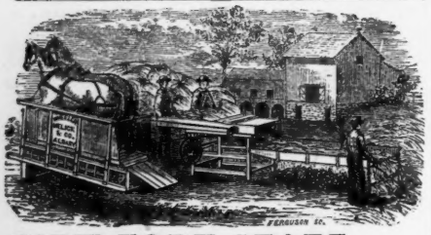
DUANE H. NASH, Gen. Agt.,
29 Cortlandt St., New York City.

H. KILLAM & CO.,
Chestnut St., New Haven, Conn.

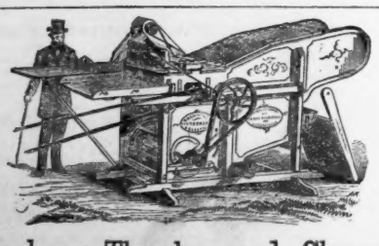


We manufacture the finest class of carriages for city use, consisting of Landaus, Landaulettes, Clarences, Coaches, Coupes, Coupelettes, Barouches, Bretts and Phætons. Which we warrant equal in point of style, finish and durability to any built in this country.

Messrs. DEMAREST & WOODRUFF, 628 Broadway, are our Agents in New York City.



NEW YORK STATE AGRICULTURAL WORKS,
PATENTEES AND MANUFACTURERS OF
Railway Chain and Lever HORSE POWERS,
Combined Threshers and Winnowers, Overshot Threshers, Clover Hullers, Feed Cutters, Saw-Mills, Horse Rakes, Horse Pitchforks, Shingle Machines, &c., &c.
ALBANY, N. Y.



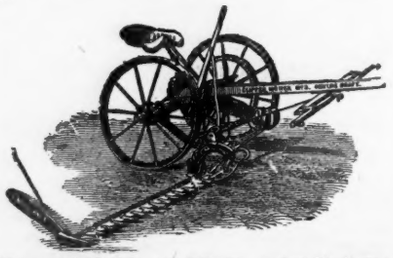
Buckeye Thresher and Cleaner
FOR **4** or **6** HORSES. THE **BEST**, MOST **COMPACT** and **Cheapest.** Send for Illustrated Circular.
BLYMYER, DAY & CO., Mansfield, O.
Victor Cane Mills, Cook's Evaporator, Victor Grain Drill.

BUY THE BEST

STYLES, SIZES, and PRICES, to Suit All Classes of Farmers.

Descriptive Circulars forwarded by mail.

THE CLIPPER MOWERS AND REAPERS.



The great field trials at Sedalia, Mo., and at Xenia, Ohio, in the summer of 1869, where the Clipper met some forty competitors, including all the leading machines built, and was awarded the First Premiums and Gold Medal—prove that the proprietors have been able to *sustain, in the field, their claims of superiority for the Clipper Machine* over all others.

Its EXTRAORDINARY LIGHTNESS of draft takes one-third of the labor off the team. The adjustability of the finger-bar to cut high or low, without stopping the team, is worth $25 on any machine. It is the only MOWER that has the true center draft, in accordance with correct mechanical principles. In short, it is the lightest, the most durable, the least complicated, the most perfectly constructed, the most symmetrical in design of any implement of its class. Farmers, the Clipper is the **Horses' Friend**, and you cannot afford to ignore their welfare. Send for pamphlet. Investigate, see or write to some one who has used the Clipper. See the machine yourself before you buy any other.

THE CLIPPER MOWER & REAPER CO.,
P. O. Box 6173. 154 Chambers St., New York.

THE JOHNSTON
Self-raking Reaper

is the MOST POPULAR MACHINE of the kind now before the public; it has more practical points that universally adapt it to the work of reaping grain than all others put together. It cuts

ANY GRAIN THAT GROWS,

whether high or low, thin or thick, lodged or standing, in the MOST SATISFACTORY MANNER; it is easily handled by an ordinary pair of horses, to cut from 15 to 20 acres between sunrise and sunset. It swaths, or lays the grain in gavels out of the way of returning team; is worked by almost any boy or ordinary field hand, or automatically, as you prefer. For further particulars send for Descriptive Pamphlets to the manufacturers,

C. C. BRADLEY & SON, Syracuse, N. Y.

Holbrook's Regulator Seed Drill.

A perfect hand-machine for sowing with *regularity and in proper quantity*, Beet, Carrot, Onion, Parsnip, Turnips, Sage, Spinach, Sorghum, Broom-Corn, Peas, Beans, etc. It is very simple, compact, durable, easy to operate, and *shows the seed as it drops* to prevent any mistake or failure, ridges the earth over the seed, and marks the rows straight any width desired. All springs, slides, reeds, and brushes dispensed with. Price $12.00.

A Hand Cultivator.

An improved implement to weed between the rows and mellow the soil. It expands from 8 to 14 inches in width, is simple and efficient. Price $6.00. Manufactured and sold by F. F. HOLBROOK & CO., Boston, Mass.

☞ Sent on receipt of price by P. O. money order or otherwise.

E. FRANK COE'S AMMONIATED BONE SUPERPHOSPHATE, price $56 per ton.
FISH GUANO.
Warranted pure, $35 per ton.
For sale by ENOCH COE,
Williamsburg, N. Y.

SHEEP SHEARS, WITH THUMB-PIECE,
MANUFACTURED BY
HENRY SEYMOUR & CO.,
52 BEEKMAN ST., NEW YORK.
Two first Premiums awarded at American Institute Fair, October, 1867 and 1869.

"VALUABLE AND WELL-MADE IMPLEMENTS."
HORACE GREELEY, Pres't.

"The Sheep Shears work splendidly, and I would not ask for any better, so says Mr. Jepson, who shears our sheep and he has sheared thousands." Resp'y yours,
(Signed) L. A. CHASE,
AMERICAN AGRICULTURIST.

Twelve First Premiums at twelve different State Fairs, Oct. and Nov., 1868. Highest recommendations from Hon. H. S. RANDALL, Pres't Wool Growers' Association and Author of the Practical Shepherd.

☞ Every pair warranted. Sent free by mail on receipt of

$2.25,	$2.50,	$2.50,	$2.75.
4½ in.,	5 in.,	5½ in.,	6 in.

Length of Blade—Thumb-piece.

SHEEP TOE SHEARS, $2 per pair.
Send Post-office Order, Registered Letter, or Draft, if possible.

HOLBROOK'S PREMIUM HORSE HOE,

FOR THE CULTIVATION OF

Corn, Potatoes, and the various kinds of Root Crops. Is extensively used. Price $12.00.

It cannot be clogged or choked with weeds, witch grass, stubble, sods, or manure, running free and clear in all kinds of soil, and is the most valuable implement ever invented for destroying witch grass.

The rear plows can be expanded from 13 to 26 inches in width; they are also reversible, so that the soil may be turned towards or from the row at pleasure, the wheel gauging the depth from 3 to 7 inches.

A pair of extra large rear plows, made for hilling up, $1.50. An extra large middle plow to furrow, and use among potatoes, $1.50.

It is a complete pulverizer of the soil, and is generally preferred to the crossing plow, or to the harrow, in mellowing the surface of plowed land preparatory to putting in the crop, and for covering manure near the surface without disturbing the inverted sod or other vegetation previously buried by the plow.

☞ A farmer cannot afford to do without one.

Manufactured and sold by
F. F. HOLBROOK & CO., Boston, Mass.

FRUIT BASKETS.

QUART. PINT. ½ PINT.

GET THE VERY BEST. In nothing does this injunction better apply than in the selection of a basket for marketing small fruits. It is an undeniable fact that no article yet offered for this purpose comes so near perfection as **THE BEECHER VENEER FRUIT BASKET.** These baskets are not only cheap, but combine greater strength, beauty, durability, and capability for ventilation than any other known style, hence for use and convenience are by far the most economical made. *Full measure guaranteed.*—no "short quarts" when the *Beecher Basket* is used. We have the voluntary testimony of many of the largest growers and commission fruit-dealers sustaining our claims for these baskets. In short, they are *the* basket,—try them and prove the correctness of above statements. Light, neat, and strong, crates of various sizes to accompany baskets, on hand, and made to order.

Send for circular and price list to

THE BEECHER BASKET COMPANY,
Westville, Conn.

Improved Foot Lathes,

With Slide, Rest, and Fittings. Elegant, durable, cheap and portable. Just the thing for the Artisan or Amateur Turner.

Send for descriptive circular.

N. H. BALDWIN, Laconia, N. H.

C.W.Co.
Motive Power for Nothing.

Our Patent, Self-regulating, Storm-defying Wind-mill is superior for pumping water for Railroads, Country Residences, Hotels, Farms, Stock-Fields, Drainage, Irrigation, etc. For circulars address

"CONTINENTAL WIND-MILL CO.,"
5 College Place, corner Park Place, New York.

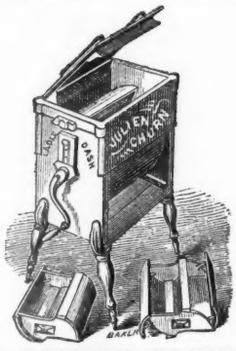
Holbrook's Swivel Plows.

Leave no "dead furrows" "nor ridges," turn furrow-slices flat on level land, lay the fields down level and smooth for the Mowing Machine, Hay Tedder, etc., work equally well on side-hill, save considerable time, pulverize thoroughly, will not clog, and equalize the work of team. All sizes, from a Garden Plow one horse, to a Plow for four cattle. Manufactured and Sold by

F. F. HOLBROOK & CO., Boston, Mass.

Standard Churn of our Country.

JULIEN CHURN



AND BUTTER WORKER.

This Churn is the Best Manufactured, the Handsomest, the Strongest, the Most Efficient and

MOST DURABLE CHURN MADE!

A perfect Butter Maker. A perfect Butter Worker & Salter. Quickly cleaned, easily operated; a child can work it.

LIST OF SIZES.

No. 2 holds 8 gallons and churns 5. No. 3 holds 10 gallons and churns 7. No. 4 holds 13 gallons and churns 10.

DAIRY CHURNS.—No. 5 Dairy holds 16 gallons, churns 13 gallons. No. 6 Dairy holds 28 gallons, churns 20 gallons. No. 7 Dairy holds 33 gallons, churns 30 gallons. The Dairy Churns have a Balance Wheel and Gear *Improved Dog Power for Sale.*

JULIEN CHURN CO.,
WM. C. CHAMBERLAIN, Gen. Agt., Dubuque, Iowa.

WHOLESALE AGENTS.—Griffing & Co., New York. Marston & Peck Bros., Chicago. Samuel Cupples, St. Louis. G. E. Hutchinson, Cleveland. Baker & Hamilton San Francisco, Cal. W. W. Knox, Pittsburgh.

☞ Send Stamp for Butter Maker's Manual.

Universal Family Scales are to become Household Words.

12 lb. **$4.**

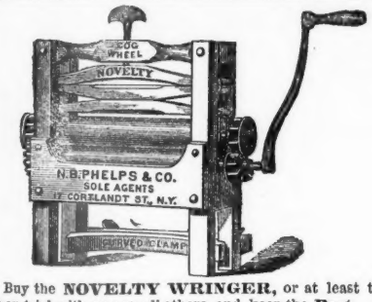
25 lb. **$5.**

50 lb. **$7.**

Look at this for your own benefit.

The UNIVERSAL FAMILY SCALE is worthy the special attention of all housekeepers. It is a new and desirable article for use in families; is the most complete thing of the kind we ever saw, and should be in every house in the nation. It has a face like a clock, and is so simple that a child can use it."—*New York Independent.*

Canvassers and *Local* agents wanted, to whom liberal terms will be given and territory guaranteed by *certificates.* Sample Scale sent on receipt of price. Send stamp for pamphlet and terms to GEO. W. LEONARD, Gen'l Agt.,
P. O. Box 2,833. 32 Cortlandt St., New York.



Buy the **NOVELTY WRINGER,** or at least take it on trial with *any* or *all* others, and keep the **Best.** *For sale everywhere.*

N. B. PHELPS & CO.,
Gen. Ag'ts, 17 Cortlandt St., New York.

INVALIDS' TRAVELING CHAIRS from $15 to $40, for in and out-door use. Any one having use of the hands can propel and guide one. Having no use of the hands, any child of five years can push a grown person about. Invalids' Carriages to order. Pat. Carrying Chairs. State your case, and send stamp for circular.

STEPHEN W. SMITH,
No. 90 William Street,
New York.

PATENT IRON RAILING.—New mode of construction. New Designs. New style of Gate, &c., all Patented. Send stamp for circular to S. MACFERRAN, 1,307 Market St., Philadelphia, Penn.

John C. Duncan **MONEY EASILY MADE**

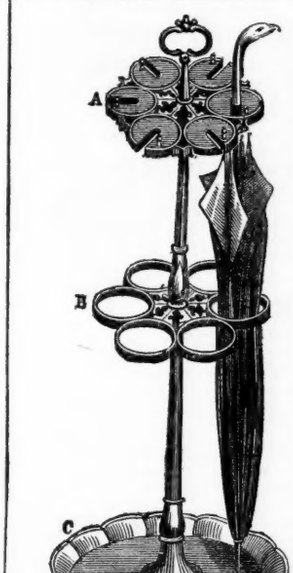
With our Stencil and Key Check Outfit. Circulars Free.
STAFFORD MF'G CO., 66 Fulton Street, New York.

WATER-PROOF BUILDING PAPER (no tar) for inside and out. C. J FAY, Camden, N. J.

WHO STOLE MY UMBRELLA

will never be asked by those who use

The Patent Umbrella Lock Stand.



The picture annexed will explain the construction better than words. Each umbrella in the stand is SECURED by lock and key, and NO TWO KEYS ARE ALIKE.

When the lock is open, the key is inside ready for use: and when the umbrella is placed and the lock closed, the key is thrown out to the depositor, who must replace it in order to get his umbrella.

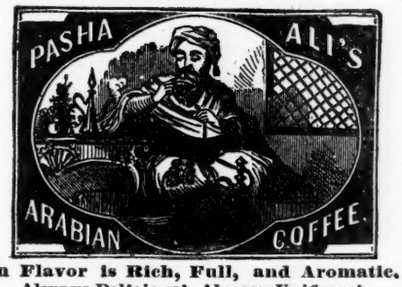
This invention combines with a tasteful Umbrella Stand, perfect security against the loss of an umbrella. It is suited to PRIVATE DWELLINGS, BOARDING-HOUSES, SCHOOLS, OFFICES, COUNTING-ROOMS, STORES, HOTELS, CHURCHES, THEATRES, CONCERT and LECTURE ROOMS, PUBLIC BUILDINGS, etc.

Umbrellas need no longer be exposed to theft, nor be hidden away wet, nor kept in the hand to soil or ruin a carpet.

The stand is made in every desirable size and style, and is kept on sale by all the *enterprising* Hardware and House-Furnishing Establishments in the country. Jobbers, generally, are supplied with it. Circulars free on application to the manufacturers or their agents.

THE HEATH & SMITH MANUFACTURING CO.

Principal Offices: 44 Murray St., New York. 54 Randolph St., Chicago. } Factories: Portland, Conn.
Agents: } CHARLES E. ADAMS, 20 Milk St., Boston, Mass. KEEN & HAGGERTY, Baltimore, Md.



In Flavor is Rich, Full, and Aromatic.
Always Delicious! Always Uniform!
UNRIVALED IN QUALITY. REASONABLE IN PRICE.

FOR SALE EVERYWHERE.
THE GREAT ARABIAN COFFEE CO.,
289 Greenwich St., New York.

HINKLEY KNITTING MACHINE

For Family use—simple, cheap, reliable. Knits everything. AGENTS WANTED. Circular and sample stocking FREE. Address HINKLEY KNITTING MACHINE CO., Bath, Me., or 176 Broadway, New-York.

A GREAT CHANCE FOR AGENTS!—$75 to $200 per month. We want to employ a good agent in every County in the U. S. on commission or salary to introduce our *World-renowned Patent White Wire Clothes Lines;* will last a hundred years. If you want profitable and pleasant employment, address HUDSON RIVER WIRE CO., 75 William St., New York, or 16 Dearborn St., Chicago, Illinois.

$100 to $250 *per Month guaranteed. Sure pay.* Wages paid weekly to Agents everywhere selling our *Patent, Silver Mould White Wire Clothes Lines.* Business permanent. For full particulars, address Girard Wire Mills, Philadelphia, Pa.

WANTED—AGENTS to sell a *thoroughly good domestic article,* wanted in every family. No competition. Exclusive territory given. Business very pleasant. Agents have sold 3 doz., netting $30 profit per day. One sold 350 in a small town; another 1,000 in 5 towns; another 31 in calling on 33 families. Cost of the outfit, $3. No danger of imposition. Best of references given. Send for Circular to 102 Washington street, Boston, Mass.

LITTLEFIELD & DAME.

ALL WANTING FARMS.—9,000 acres, good soil, mild climate, 34 miles south of Philadelphia. Price only $25 per acre. Also improved farms. The place is growing more rapidly than almost any other place in the United States. Thousands are settling. Address

C. K. LANDIS, Vineland, N. J.

See the SAFE! SAFE! SAFE! advertisement of VOTAW & MONTGOMERY, on last cover page.

Special Notice to Farmers!

We are daily in receipt of so many letters from Farmers and others making inquiries as to quality, price, whether we can send a single pair, &c., that we find it an utter impossibility to answer them. We take this method of reaching all. Having now made the necessary arrangements to send single pairs, we expect to have a pair of "CHAMPIONS" on the feet of every reader of the "AGRICULTURIST."

(Patented May 29th, 1866.)

The "CHAMPIONS" are made in the most DURABLE MANNER and of the very BEST MATERIAL, and every pair

WARRANTED.

Every pair contains a heavy SOLE-LEATHER COUNTER. We use nothing but the VERY BEST Hemlock and Oak Tanned Kip. Our N. K. CALF is a flesh split, finished on the flesh side. The grain is finer and will wear as smooth as calf-skin. We guarantee its WEARING QUALITIES and DURABILITY.

FOR A PLOW SHOE THEY ARE EXCELLENT.
FOR THE HARVEST FIELD THEY ARE INVALUABLE.
FOR BOYS' WEAR THEY ARE SUPERIOR, AS THEY WILL SAVE THE PRICE OF TWO PAIRS OF SHOES IN A YEAR IN ROTTEN AND BROKEN SHOE-STRINGS.

Their Advantages.

The seams are at such points as can never hurt the feet and the shoe needs only to be closed at the top by a simple Buckle and strap; saving TIME, TROUBLE and VEXATION.

The fore part overlapping the quarter renders it impossible for DIRT, STUBBLE or RUBBISH to enter the shoe, which, to farmers and laborers, proves a blessing indeed.

Farmers, if you wish to procure for yourselves and boys a GOOD, HONEST, SERVICEABLE shoe, one that will give you entire satisfaction, save you TIME, TROUBLE and ANNOYANCE, you can remit us by mail the prices given below; stating your size or number, whether DOUBLE SOLE or SINGLE SOLE, by what EXPRESS to ship, and they will be sent you by return Express.

NEW YORK, May 10, 1870.

We have examined carefully "BALLARD'S CHAMPION SHOE," and, without practical use, should judge it to be a capital article. The peculiar cut gives it the set and bearings of a boot, with the ease and lightness of a shoe; and the strap brings it as closely as desired around the ankle without the trouble of strings. Those which we have seen are of good stock and well made.

ORANGE JUDD & CO.

Men's Pegged,	Double or Single Sole,	full	Oak	Kip	$2.75
Boy's	"	"	"	"	2.25
Men's	"	"	"	N. K. Calf Kip	2.50
Boy's	"	"	"	"	2.00

The CHAMPIONS are manufactured solely by the well-known House: BAY STATE SHOE & LEATHER CO.,
32 and 34 Vesey St., New York.

Address **A. BALLARD & SON,**
P. O. Box 5,000, New York.

AGENTS WANTED in every town, county, and State, to canvass for HENRY WARD BEECHER'S new weekly paper, with which is GIVEN AWAY that superb and world-renowned work of art, "*Marshall's Household Engraving of Washington.*" The best paper and the grandest engraving in America. Agents report "making $20 in half a day." "Sales easier than books, and profits greater." This is something *entirely new,* being an *unprecedented combination.* Send for circular and terms to

J. B. FORD & CO., Publishers,
39 Park Row, New York.

AGENTS LOOK!—$12 a day made, selling our SCISSORS SHARPENER and other wares. Sample 25 cts. Catalogue free. T. J. HASTINGS & CO., Worcester, Mass.

"It is a boon to womankind."—*Hall's Jour. of Health.*

SIXTH EDITION—TENTH THOUSAND OF

CONJUGAL SINS

AGAINST THE

LAWS OF LIFE AND HEALTH,

And Their Effects upon the Father, Mother, and Child.
By A. K. GARDNER, A. M., M. D.

CONTENTS.

CHAPTER.
I. The Modern Woman's Physical Deterioration.
II. Local Disease in Children, and its Causes.
III. At What Age Should One Marry?
IV. Is Continence Physically Injurious?
V. Personal Pollution.
VI. The Injurious Results of Physical Excess.
VII. Methods Used to Prevent Conception, and their Consequences.
VIII. Infanticide.
IX. Conjugal Relations During the Period of Menstruation.
X. Conjugal Relations Between the Old.
XI. Marriage Between Old Men and Young Girls.
XII. What May be Done with Health in View and the Fear of God Before Us.

*** In one vol., 12mo, paper cover. Price, $1; bound, $1.50. Sold by Booksellers and Newsmen, or sent by mail prepaid on receipt of price.

J. S. REDFIELD, 140 Fulton St., New York.

The Bright Side; A PAPER FOR ALL CHILDREN, now published weekly at $1.00 a year. Eight beautifully illustrated pages. No continued stories. The very best writers. Large premiums for clubs. A success beyond all example. 30,000 circulation, though less than one year old. Specimen FREE. WILCOX & ALDEN, Publishers, Chicago, Ill.

INSTITUTE OF PRACTICAL CIVIL ENGINEERING, SURVEYING AND DRAWING.—Courses of three, six and twelve months. For circular, address
A. VANDER-NAILLEN, Room C, Reynolds Block, Chicago.

DOWNING'S

FRUITS

AND

FRUIT TREES.

BY

A. J. DOWNING.

Newly Revised and Greatly Enlarged

BY

CHARLES DOWNING.

Octavo, 1122 Pages.

The original work of the late A. J. Downing appeared in 1845. Some years after it was revised and much enlarged by his brother, Charles Downing, who has again completed the work of a second revision. Charles Downing is upon all hands acknowledged as one of our highest pomological authorities. He writes but seldom, but whatever bears his name is accepted as the judgment of one who is entirely disinterested, as far as the commercial aspects of pomology are concerned. The present edition contains the results of many years' labor and experience which have been devoted to testing the value of fruits and acquiring a knowledge of them that should benefit others.

RECOMMENDATION FROM HON. MARSHALL P. WILDER,
President of the American Pomological Society.

BOSTON, Oct. 4, 1869.

GENTLEMEN:

I have received a copy from Mr. Charles Downing of the second revised edition of the "FRUITS AND FRUIT TREES OF AMERICA." It is the most comprehensive of any similar work, in fact a complete ENCYCLOPEDIA OF AMERICAN POMOLOGY brought down to the present time.

The original edition by his brother, the late Andrew Jackson Downing, popular as it ever has been, is made doubly interesting and useful by this revision, comprising as it does the results of a long life of critical observation.

As a work of reference it has no equal in this country, and deserves a place in the library of every Pomologist in America. MARSHALL P. WILDER.

This elegant and valuable work will be an indispensable requisite to every library, and to all interested in Fruits or Fruit Culture.

PRICE, PREPAID, $7.50.

ORANGE JUDD & CO.,
245 Broadway, New-York.

AMERICAN CATTLE:

THEIR

HISTORY, BREEDING,

AND

MANAGEMENT.

BY LEWIS F. ALLEN,

Late President New York State Agricultural Society, editor "American Shorthorn Herd Book," author "Rural Architecture," etc., etc.

NOTICES BY THE PRESS.

We consider this the most valuable work that has recently been issued from the American press. It embraces all branches of the important subject, and fills a vacancy in our agricultural literature for which work the author by his many years' experience and observation was eminently fitted.....It ought to be in the hands of every owner of cattle; and the country, as well as individuals, would soon be much richer for its teachings.
Journal of Agriculture (St. Louis).

The large experience of the author in improving the character of American herds adds to the weight of his observations, and has enabled him to produce a work which will at once make good its claims as a standard authority on the subject. An excellent feature of this volume is its orderly, methodical arrangement; condensing a great variety of information into a comparatively small compass, and enabling the reader to find the point on which he is seeking light, without wasting his time in turning over the leaves. *N. Y. Tribune.*

This will rank among the standard works of the country, and will be considered indispensable by every breeder of live-stock. *Practical Farmer (Phila).*

We think it is the most complete work upon neat-stock that we have seen; embodying as it does a vast amount of research and careful study and observation.
Wisconsin Farmer.

His history of cattle in general and of the individual breeds in particular, which occupies the first 180 pages of the volume, is written with much of the grace and charm of an Allison or a Macauley. His description of the leading breeds is illustrated by cuts of a bull, a cow, and a fat ox, of each race. The next one hundred pages are devoted to the subject of Breeding. This is followed by chapters on Beef Cattle, Working Oxen, Milch Cows, Cattle Food, Diseases, etc. The arrangement, illustrations, analytical index, etc., of the work are in the best style of modern book-making.
New England Farmer.

The work is one that has long been needed, as it takes the place of the foreign books of like nature to which our farmers have been obliged to refer, and furnishes in a compact and well-arranged volume all they desire upon this important subject. *Maine Farmer.*

Whatever works the stock farmer may already have, he cannot afford to do without this. *Ohio Farmer.*

It is one of the best treatises within our knowledge, and contains information sound and sensible, on every page. *The People, (Concord, N. H.)*

The object of the work, as stated by the author in his preface, "is not only to give a historical account of the Bovine race, to suggest to our farmers and cattle breeders the best methods of their production and management, but to exalt and ennoble its pursuit to the dignity to which it is entitled in the various departments of American agriculture." From the little examination we have been able to give it, we can not recommend it too highly.
Canada Farmer.

Considering that there are some ten millions milch cows in the United States, and nearly a thousand millions of dollars invested in cattle, the magnitude of this interest demands that the best skilled talent be devoted to the improvement of the various breeds and the investigation of the best method of so caring for the animals as to gain the greatest profit from them. This volume will give the farmer just the instruction which he wants.
N. Y. Independent.

PRICE, POST-PAID, $2.50.

ORANGE JUDD & CO.,
245 Broadway, New-York.

A GOOD BOOK FOR ALL

STUDENTS OF AGRICULTURE.

AGRICULTURAL

Qualitative and Quantitative

CHEMICAL ANALYSIS.

EDITED BY

G. C. CALDWELL,

Professor of Agricultural Chemistry in the Cornell University.

Teachers of Agricultural Chemistry have long felt the need of a text book which should serve as a guide to the analysis of soils, manures, and the products of the farm. The present work is very thorough, beginning with the preparation of reagents and giving the most approved methods of manipulation. Professor Caldwell modestly calls himself the editor; but his book shows that he has not contented himself with editing the works of others, but has given much of his own experience.

CONTENTS.

CHAPER I.—THE REAGENTS.

List of the reagents needed, with directions for preparing them, when not more readily obtained otherwise, and for testing their purity.

CHAPTER II.—ANALYTICAL MANIPULATION.

Determination of specific gravity, solution, evaporation, precipitation, filtration (including Bunsen's new method), weighing of residues and precipitates, measuring and dividing solutions, and calculation of results.

CHAPTER III.—REACTIONS AND METHODS OF QUANTITATIVE ESTIMATION.

Potassium, sodium, ammonium, barium, calcium, magnesium, aluminium, iron, manganese, zinc, lead, copper, and arsenic; silicic, sulphuric, carbonic, phosphoric, nitric, hydrochloric, hydrocyanic, hydroferrocyanic, hydrosulphuric, hydriodic, hydrofluoric, oxalic, acetic, tartaric, citric, malic, lactic, uric, hippuric, and tannic acids; cellulose, starch, gum, the sugars, albuminoids, urea, fat, and alcohol.

CHAPTER IV.—SPECIAL METHODS OF ANALYSIS.

Course of Qualitative analysis, estimation of water, of organic matter, of sulphur and chlorine in organic compounds, special methods of separation of bases and acids, schemes of analysis.

CHAPTER V.—ANALYSIS OF SOILS AND ROCKS.

Mechanical and chemical analysis, and examination of physical properties of soils, and examination of marl, limestone, and clay.

CHAPTER VI.—FERTILIZERS.

Farm-yard manure, urine, solid excrements, bone-meal, bone-black, bone-ash, phosphorite, guano, superphosphate, gypsum, salt, potash compounds, and Chili saltpetre.

CHAPTER VII.—ASHES.

Ashes of plants, of animal substances, and of fuel.

CHAPTER VIII.—FODDER AND FOOD.

Fodder plants, beets, turnips, potatoes, seeds, meal, flour, milk, butter, cheese, and vinegar.

CHAPTER IX.—WOOL AND BARK.

Examination of wool and tanners' bark.

CHAPTER X.—BEVERAGES.

Water and wine.

CHAPTER XI.—TABLES.

Metric system of weights and measures, atomic weights of elements, factors for calculating analyses, estimation of tannin in bark, etc.

PRICE, POST-PAID, $2.00.

ORANGE JUDD & CO.,
245 Broadway, New York.

GARDENING FOR PROFIT

IN THE MARKET AND FAMILY GARDEN.

BY PETER HENDERSON. FINELY ILLUSTRATED.

This is the first work on Market Gardening ever published in this country. Its author is well known as a market gardener of eighteen years' successful experience. In this work he has recorded this experience, and given, without reservation, the methods necessary to the profitable culture of the commercial or

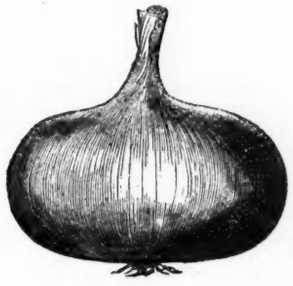
MARKET GARDEN.

It is a book which commends itself, not only to those who grow vegetables for sale, but to the cultivator of the

FAMILY GARDEN,

to whom it presents methods quite different from the old ones generally practiced. It is an ORIGINAL AND PURELY AMERICAN work, and not made up, as books on gardening too often are, by quotations from foreign authors.

Every thing is made perfectly plain, and the subject treated in all its details, from the selection of the soil to preparing the products for market.



CONTENTS.

Men fitted for the Business of Gardening.	Location, Situation, and Laying Out.	Formation and Management of Hot-beds.	Transplanting; Insects.
The Amount of Capital Required, and	Soils, Drainage, and Preparation.	Forcing Pits or Green-houses.	Packing of Vegetables for Shipping.
Working Force per Acre.	Manures; Implements.	Seeds and Seed Raising.	Preservation of Vegetables in Winter.
Profits of Market Gardening.	Uses and Management of Cold Frames.	How, When, and Where to Sow Seeds.	Vegetables, their Varieties and Cultivation.

In the last chapter, the most valuable kinds are described, and the culture proper to each is given in detail.

SENT POST-PAID. - - - - - - - - PRICE, $1.50.

ORANGE JUDD & COMPANY, 245 Broadway, New York.

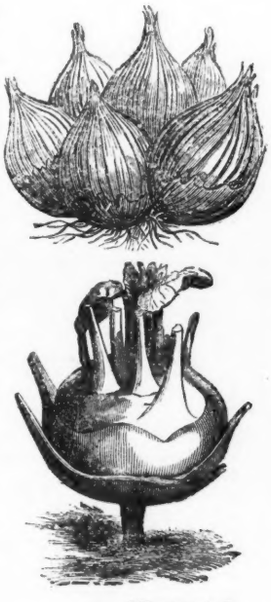
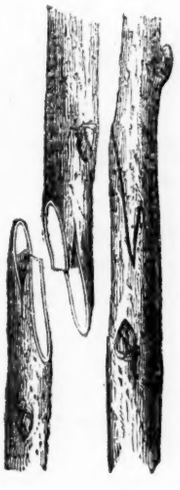
GARDENING FOR THE SOUTH,

Or, HOW TO GROW VEGETABLES AND FRUITS.

BY THE LATE WILLIAM N. WHITE, OF ATHENS, GA.

WITH ADDITIONS BY MR. J. VAN BUREN, AND DR. JAS. CAMAK.

Though entitled "Gardening for the South," the work is one the utility of which is not restricted to the South. It is an admirable treatise on gardening in general, and will rank among the most useful horticultural works of the present day. Horticultural operations are clearly explained, and more in detail than is usual in works of this kind. To those living in the warmer portions of the Union, the work will be especially valuable, as it gives the varieties of vegetables and fruits adapted to the climate and the modes of culture which it is necessary to follow.

CONTENTS.

CHAP. I.—Formation and Management of Gardens in General.
CHAP. II.—Soils — Their Characteristics.
CHAP. III.—The Improvement of the Soil.
CHAP. IV.—Manures.
CHAP. V.—Manures—Their Sources and Preparation.
CHAP. VI.—Rotation of Crops.
CHAP. VII. — Hot-beds, Cold Frames, and Pits.
CHAP. VIII.—Garden Implements.
CHAP. IX.—Propagation of Plants.
CHAP. X.—Budding and Grafting.
CHAP. XI.—Pruning and Training.
CHAP. XII.—Transplanting.
CHAP. XIII.—Mulching, Shading, and Watering.
CHAP. XIV. — Protection from Frost.
CHAP. XV.—Insects and Vermin.
CHAP. XVI.—Vegetables—Description and Culture.
CHAP. XVII.—Fruits—Varieties and Culture.

Illustrated. Revised and Newly Stereotyped.

SENT POST-PAID. - - - - - - - - PRICE, $2.00.

ORANGE JUDD & COMPANY, 245 Broadway, New York.

(Advertisements on this page, $2.50 per Agate Line of Space.)

GREAT REDUCTION

IN PRICES OF

TEAS & COFFEES

TO CONFORM TO THE

PRICE OF GOLD.

GET FRESH GOODS & SAVE MONEY.

THE

GREAT AMERICAN TEA COMPANY,

Established 1861,

Are now receiving the choicest EARLY PICKINGS NEW CROP TEAS from the best cultivated districts of China and Japan.

These Teas have been selected with great care, and with especial reference to the taste and wants of our customers. They are very fresh, and of the choicest flavor.

We shall now fill "club orders" from these new crops Teas in quantities to suit our customers, at greatly reduced prices, while the goods are of the freshest description. Liberal discounts allowed to Clubs of $30 and upwards.

PRICE LIST OF TEAS:

OOLONG (Black), 50c, 60c., 70c., 80c., best 90c.
MIXED (Green and Black), 50c., 60c., 70c., 80c., best 90c.
SOUCHONG (Black), 80c., 90c., best $1.
ENGLISH BREAKFAST (Black), best $1.15.
IMPERIAL (Green), 80c., 90c., $1, $1.10, best $1.25.
YOUNG HYSON (Green), 60c., 70c., 80c., 90c., $1, $1.10, best $1.20.
UNCOLORED JAPAN, 90c., $1, $1.10, best $1.20.
GUNPOWDER (Green), $1.25, best $1.50.

COFFEES ROASTED AND GROUND DAILY.

GROUND COFFEE, 15c., 20c., 25c., 30c., 35c., per pound. Hotels, Saloons, Boarding-house keepers, and Families who use large quantities of Coffee, can economize in that article by using our FRENCH BREAKFAST and DINNER COFFEE, which we sell at the low price of 25 cents per pound, and warrant to give perfect satisfaction.

Consumers can save from 5 to 8 profits by purchasing their Teas of the GREAT AMERICAN TEA COMPANY.

By our system of supplying clubs throughout the country, consumers in all parts of the United States can receive their teas at the same prices (with the small additional expense of transportation) as though they bought them at our wholesale warehouses in this City.

All Goods Warranted or the Money Refunded.

POST-OFFICE Orders and Drafts, make payable to the order of the Great American Tea Company. Direct letters and orders to the

Great American Tea Company,
Nos. **31** and **33** VESEY-ST.,
Post-Office Box, **5,643,** New York City.

HORSFORD'S SELF-RAISING BREAD PREPARATION

Makes the most wholesome and best of BREAD, BISCUIT, CAKES, &c. Unlike some other yeast, it contains no POISON to create DYSPEPSIA, and the bread may therefore be eaten hot without detriment. Resolving itself into Phosphate of Lime and soda, it prevents RICKETS, CHOLERA, and decay of TEETH, and promotes the growth of Muscle and Bone. In "*raising*" the dough it does not, like other yeast, decompose the flour, but adds nutriment to the bread, and otherwise improves it in quality and quantity. Each package contains full directions for use. Send for pamphlet, supplied gratis. Ask your Grocer for "Horsford's Bread Preparation." WILSON, LOCKWOOD, EVERETT & CO., Wholesale Agents, 201 Fulton-st., New York.

HUTCHISON'S FAMILY CIDER AND WINE MILL, is the best for Hand. Made with single or double curb. *Also presses and grinders separate. For Manufacturers.*

DANIELS' POWER MILL is the best of all, crushing the fruit and yielding more juice than any other. Not liable to injury. *Cast Cider Press Screws,* fine thread and very powerful. *Copper Strip Feed Cutters,* the best and cheapest Self-feeding Cutter for Hay, Straw, and Corn-stalks. *Nishwitz Pulverising Harrow,* with seat, will be owned as soon as known. Send for Illustrated Circular.

PEEKSKILL PLOW WORKS,
Peekskill, N. Y., or 61 Merwin St., Cleveland, Ohio.

Read Votaw & Montgomery's Adv't on last cover page.

Soups and Beef Tea for the Million.

Strengthening Nourishment! Economy in housekeeping! LIEBIG'S COMPANY'S EXTRACT OF MEAT, the same that received the highest prizes at Paris, Havre, and Amsterdam, and that is supplied to the British, French, Russian, Prussian, and other Governments. None genuine without the signatures of Baron Liebig, the inventor, and of Dr. Max V. Pettenkofer, delegate, on every jar.

J. MILHAUS' SONS, Company's Agents, 183 Broadway, New York. For sale everywhere.

N. Y. State Agricultural Society

Says: "No more direct or emphatic endorsement of your scales can be given by the Society than has been given in the award of its

FIRST PREMIUM

Medal which you have received, and which the Executive Board unanimously sustained on appeal. The testimony of the Judges being that your premium scale was equal in *design, material, construction,* and accuracy, to those of

FAIRBANKS,

although furnished at such a moderate price."

FOUR TON HAY SCALES, $75.

Send for FREE PRICE LIST 196.

EDWARD F. JONES,
Binghamton, N. Y.

PLATFORM AND COUNTER

SCALES.

For Farmers, Merchants, Manufacturers, Railroad Companies, Machinists, Druggists, &c., &c., in great variety.

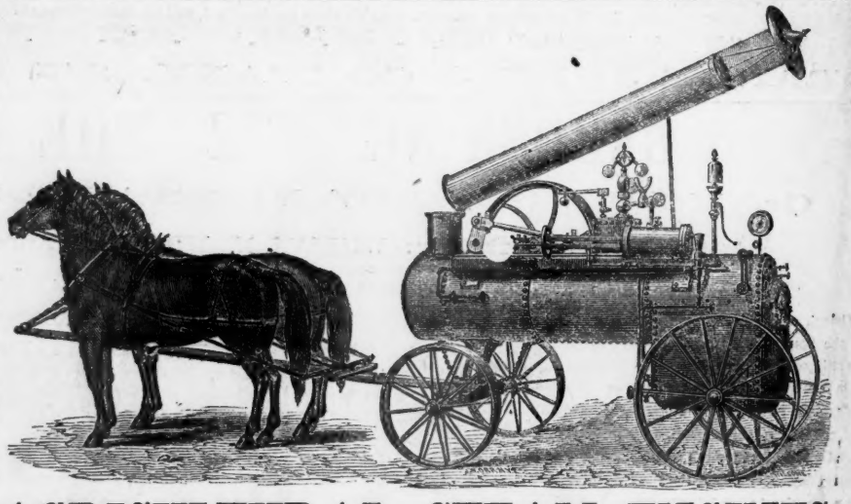
Every Farmer should have a **FAIRBANKS' SCALE.**

Send for Circular. FAIRBANKS & CO.,
252 Broad way, New York.
246 Baltimore St., Baltimore, Md.
53 Camp St., New Orleans.
FAIRBANKS & EWING, Masonic Hall, Philadelphia.
FAIRBANKS, BROWN & CO., 118 Milk St., Boston.

A. D. PUTNAM & CO., Produce Commission Merchants, No. 68 Pearl-st, New York. "Quick sales and prompt returns." ☞ Send for our weekly Price-current and Marking Plate. ☜

A TRIAL TRIP 3 MONTHS FOR 30 CTS

All who are interested in Fruit Culture, Gardening, Flowers, Designs of Cottages, Ornamental Trees, Shrubs, and embellishment of Home Grounds, are invited to take a trial trip with THE HORTICULTURIST for 3 months or a year. Subscription terms reduced for the Spring of 1870. In clubs of 5 or over, only $1.50 a year; 3 copies, $3; 2 copies, $4. Full terms, $2.50 per annum. Send stamp for Illustrated Prospectus and Premium List of valuable Roses and Lilies. Now is the time to form Clubs for a good gardening and horticultural journal. Address HENRY T. WILLIAMS, 5 Beekman St., New York.



AGRICULTURAL STEAM ENGINES.

EQUALLED BY NONE IN COMBINED MERITS OF CAPACITY, ECONOMY, DURABILITY, SIMPLICITY, AND PERFECTION.

ADAPTED ESPECIALLY TO

Grain Threshing, Wood and Shingle Sawing, Cotton Ginning,

and various other service on the Farm and Plantation. Hundreds are in use, accomplishing more and better work, with greater satisfaction and economy than can be effected with any other power.

These AGRICULTURAL ENGINES are not an Experiment, BUT A SUCCESS OF MANY YEARS' TRIAL AND PROOF,—THE RESULT OF MANY YEARS' PERFECTION. Among their chief merits are

SIMPLICITY AND STRENGTH OF CONSTRUCTION;

not requiring the skill of an experienced Engineer to use, nor the expense of a machinist to repair or keep in order.

One of these Engines Threshed 41,000 Bushels of Grain in 83 Days, last Season, earning $1,986.

Descriptive Circulars of these, and also of our PORTABLE and STATIONARY ENGINES, will be furnished on application to

WOOD, TABER & MORSE,
Eaton, Madison Co., N. Y.

EDUCATION for FARMERS.—For information apply to W. S. CLARK, President Massachusetts Agricultural College, Amherst, Mass.

Patents, Government Claims, Pensions, Bounties, &c. address J. McC. Perkins, Counsellor at Law, 512 7th St. Washington, D. C.